SEXUALLY TRANSMITTED DISEASE CONTROL GUIDELINES

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Manitoba Health

INTRODUCTION

Syphilis and gonorrhea have been major public health concerns on this continent for many years and STD control programs have traditionally been directed primarily at these two infections. However, there is an ever-growing number of more recently recognized sexually transmissible diseases which cause considerable morbidity and mortality and which therefore have a significant public health impact.

"V.D. Program Guide" (J.N.R. Scatliff, 1977) was the first provincial publication to provide direction on control programs for STD. These present revised guidelines have been made necessary both because of new knowledge about and patterns of "traditional" STD, and the current "epidemic" of newer STD.

Optimal control strategies must be implemented for each specific disease and continuous efforts need to be made to evaluate and, if necessary, revise our control measures.

M.V. Fast, M.D.
Director, Communicable Disease Control

P. Matusko, R.N.
Program Co-ordinator, CDC/STD Control

E. Sherman, R.N.
Nursing Specialist, CDC/STD Control

L. Heise, R.N.
Public Health Nurse, CDC/STD Control

PREFACE

"Sexually Transmitted Disease Control Guidelines" is intended for all health workers who are involved in or will become involved in the control of sexually transmitted diseases (STD). It contains information about the epidemiology and management of sexually transmitted diseases which are prevalent in Manitoba and also includes STD control policies of Manitoba Health.

These guidelines are not intended to be used as a "rule book". Individual patients may present with unique problems and because of geographic locale, some regions may require altered approaches to disease control.

It is assumed that the persons using these guidelines will have some basic information about sexually transmitted diseases and this information is not repeated here. Neither have we provided detailed information on sexually transmitted diseases which are an isolated exception in Manitoba.

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SEXUALLY TRANSMITTED DISEASE CONTROL PROGRAM

PROGRAM GOAL

A reduction in the incidence of sexually transmitted diseases and their complications in Manitoba.

PROGRAM MANDATE

Regulation P210/R2, Division II of the Public Health Act (Appendix A) provides the legal basis for the prevention and control of sexually transmitted diseases in Manitoba.

OVERALL OBJECTIVE

To achieve this goal it is necessary to have a single co-ordinated province-wide program dedicated to the optimal management of sexually transmitted diseases (STD).

All participants — clinicians dealing with STD, regional Manitoba Health staff, staff of the City of Winnipeg Health Department and staff in the Manitoba Health STD control section — must communicate effectively and all must have input into program planning and program evaluation activities.

GENERAL FUNCTION OF STD CONTROL SECTION

The Manitoba Public Health Act and its regulations require that the province maintain an effective program of STD control. The STD control section has the responsibility of ensuring the maintenance of this program.

The STD control section is a part of the Communicable Disease Control Directorate. The program responsibility line is through the Director of Communicable Disease Control to the Assistant Deputy Minister of Health.

The STD control section is responsible for:

1. Surveillance of disease trends.
2. Co-ordinating program planning.
3. Developing program priorities.
4. Monitoring, evaluating and revising existing programs.
5. Providing regions with standards and guidelines to assist them in program implementation.
6. Education at a provincial level.

In co-ordinating these functions, the opinions of the service sections and other appropriate professional groups are actively solicited.

SPECIFIC RESPONSIBILITIES OF STD CONTROL SECTION

The STD control section recognizes the role of the Manitoba Health regions and the City of Winnipeg Health Department in the management of STD. The STD control section:

1. Co-ordinates the STD control program.
2. Drafts recommendations for policy decisions and responds to inquiries from the Minister, Deputy Minister and Assistant Deputy Minister.
3. Participates in intra-and inter-departmental planning.
4. Maintains a current and functional master registry of cases of STD and their contacts. This provides the statistical base for the epidemiological surveillance of disease trends for program planning, monitoring, evaluation and

the development of recommendations for the revision of programs. The registry also expedites the exchange of information on cases and contacts. Accumulated data is provided to the Manitoba Health Regions and the City of Winnipeg Health Department in the form of regular reports or in response to requests.

5. Provides consultation services through specialized staff to physicians, regional staff and to staff of the City Health Department.
6. Ensures that objectives of the program are accurately reflected in the budget process after joint discussions between region and section.
7. Reviews and amends current STD reporting mechanisms.
8. Maintains communication with the STD control programs in other provinces and with the federal government.
9. Liaises with interested professional groups and institutions and actively involves the Cadham Provincial Laboratory (CPL) and other laboratories in the STD control program.
10. Initiates, participates in and utilizes studies and research to improve the STD control program in Manitoba.
11. Maintains a provincial supply of drugs recommended for the treatment of notifiable STD and distributes them to the regions at their request according to current policy.

EDUCATIONAL ACTIVITIES OF STD CONTROL SECTION

1. Assists professional organizations, universities and schools of nursing to initiate and maintain their own continuing education programs in STD.
2. Promotes the goal and overall objective of the STD control program with physicians through their professional association and in conjunction with the regional Medical Officer of Health (MOH) informs them of disease management recommendations.
3. Provides education for departmental and non-departmental professional personnel involved in the delivery of the STD control program.
4. Initiates, develops and carries out province-wide mass media campaigns directed to the general public in order to create a more positive attitude toward the prevention and management of STD.
5. Acts as a consultant to the Department of Education in the development of the Manitoba School Health Curriculum as it relates to the prevention and management of STD.
6. Ensures that visual aids and publications available through the Manitoba Health and Health Resource Centre, contain appropriate, current and factual information regarding the prevention, treatment, and management of STD.
7. Provides consultation to Directorates, other government departments and appropriate external agencies regarding risks, prevention, and management of STD.

GENERAL FUNCTIONS OF MANITOBA HEALTH REGIONS AND CITY OF WINNIPEG HEALTH DEPARTMENT IN THE STD CONTROL PROGRAM

It is the responsibility of the Manitoba Health regions and the City of Winnipeg Health Department to plan, implement, evaluate and manage the STD control services for their area in accordance with the provincial standards and guidelines.

SPECIFIC RESPONSIBILITIES OF MANITOBA HEALTH REGIONS AND CITY OF WINNIPEG HEALTH DEPARTMENT IN THE STD CONTROL PROGRAM

1. Deliver an effective STD control service in their area within the standards and guidelines established for the program.
2. Collaborate in program planning and implement new programs and initiatives as required in the standards and guidelines.
3. Target resources to high-risk groups and implement strategies in response to emergent STD problems, and in rural areas ensure adequate local access to health care resources.
4. Participate in the maintenance of an effective master registry.
5. Consult with regional hospitals and clinics to initiate and facilitate the organization of effective regional case and contact management systems.
6. Provide statistical data and maintain effective communications and reporting systems as required or requested by the STD control section.
7. Encourage the use of program protocols in the screening, diagnosis and management of cases and contacts.
8. Establish and maintain effective working relationships with physicians and other health care professionals involved in the STD control program.
9. Ensure that contacts of cases of notifiable STD receive appropriate management.
10. Distribute recommended drugs for the treatment of notifiable STD as requested by physicians in rural areas.
11. May participate in research projects.

EDUCATIONAL ACTIVITIES OF MANITOBA HEALTH REGIONS AND CITY OF WINNIPEG HEALTH DEPARTMENT

1. Inform, teach and counsel individuals, families and community groups on the risks, prevention, and management of STD.
2. Identify ongoing staff development needs of regional personnel and other health care providers involved in the delivery of the STD control program and develop plans to meet these needs.

REPORTING OF SEXUALLY TRANSMITTED DISEASE

A primary objective of the STD control program is the identification of those members of the community who have a sexually transmitted disease or may be incubating it.

Concerted efforts need to be made to elicit the names of all those contacts at risk. It is imperative to locate contacts who may be infected as soon as possible if these diseases are to be controlled.

Notification:

The prime purpose of the notification system is to allow for the interruption of the process of disease spread through epidemiological measures. Persons responsible for diagnosis and treatment should initiate communication with those responsible for control programs. Failure to notify Manitoba Health of infections may result in unnecessary illness in others. To be effective, notification should be made within the first 48 hours after a diagnosis has been made.

Notification Card (NH1) — (see Appendix B)

The most important element of notification is communication of information — from clinician to the Health Department and vise-versa. The notification card is the usual format through which diagnosticians report. Physicians may complete the card themselves, or provide the necessary information to the regional Medical Officer of Health (MOH) or to the STD Control Section at 945-6791 on laboratory-confirmed cases.

ACTIVITY	RESPONSIBILITY
Diagnosis and Treatment of STD in case	— **clinician**
↓	
Notification (via card or other means) to (i) regional MOH or (ii) STD Control Section	— **clinician**
↓	
Interview of case to include identification of contacts. It often follows notification but notification is not a prerequisite to initiating	— **clinician or public health nurse**
↓	
Tracing of contacts so they can be investigated and epi-treated. Contact information should be completed on each contact and a copy forwarded to the STD Control Section. If the contact cannot be traced, it is still necessary to complete the card with any information that is available.	— **public health nurse**

- If a contact of chlamydia or gonorrhea has not been located within 30 days after tracing is instituted, the tracing efforts should be abandoned. If a contact of syphilis has not been located by 60 days, further search is not likely to be helpful.

- Although physicians may choose to interview cases which they have diagnosed, and trace contacts of these cases, these are both very time-consuming processes. For this reason, it is generally preferable to have the PHN, specially trained in these techniques, carry out these tasks for urgent cases or if the physician prefers to request their assistance.

Remember

1. Time element is critical.

2. These are not diseases of two people alone.

GUIDELINES FOR INTERVIEWING

OBJECTIVES: (1) To educate the case about the infection.
(2) To obtain information about contacts so that they can be located and managed appropriately.

- The earlier a case is interviewed, the greater the likelihood of obtaining data useful for disease control. Therefore it is extremely important to conduct this interview without delay and certainly within the first 24 hours of notification if possible.
- All sexual activity during the critical period of infectivity should be discussed with the case. The time period for which the case is interviewed is determined by the stage of the infection or duration of disease and must always include the time from the day of treatment up to the time the interview is conducted.
- Under no circumstances should the interviewing process itself be hurried. It is essential to proper communication that the interviewer follow the prearranged protocol, allowing the interviewee time to develop a frame of mind which will encourage him/her to provide the information necessary for disease control.
- The content and order of the interview should follow the outline as provided on page 12. It has been designed to develop a sense of trust in the patient. The interviewer should demonstrate a personality that relaxes people and gains their confidence. The interviewer must be confident and forceful with a genuine belief in the program. The interviewer must be in control of the interview at all times. Loss of control may be regarded by the case as a sign of incompetence. Control is not flaunted but is demonstrated by the interviewer's tone of voice, attitudes, and behavior. The whole success of this interview will depend largely upon the disposition and personality of that interviewer.
- The interviewer must not assume that a person's sexual activity is confined to the opposite sex. It must be assumed that each individual may partake in homosexual as well as heterosexual relationships. Interviewers must discuss with each case various modes of transmission and sexual preferences without apology. In a like manner, sexual activity must not be assumed to be confined to one occasion, nor to one individual. An exhaustive inquiry should be made into these areas if that information is not already volunteered.
- The possible infection of wives, husbands and common-law partners must always be assumed on the basis of cohabitation. Possible infection of children might have to be considered in some cases.
- All interviewing should (particularly in emergent cases) be carried out face-to-face in a location where conversation cannot be overhead. It is important that the case is assured of complete privacy and confidentiality.
- The case should be assured that his/her name will not be revealed as the source of the information provided.
- Investigation in the field should begin as soon as possible after the interview. If subsequent follow-up in the field fails to produce at least one infectious partner, then the patient may need to be reinterviewed. A reinterview may also become necessary to obtain more information on partners already named.

INTERVIEW OUTLINE

I. General Section

A. Goals
1. Relax the patient
2. Establish an early analysis of the patient
3. Project an image of interviewer competence and understanding
4. Gather fundamental information for epidemiologic analysis

B. Method — modified direct approach to data gathering
1. Establish locating information
2. Assess "living with" situation
3. Determine length of residence in the city/town
4. Determine length of residence at given address
5. Discuss patient's occupation
6. Obtain name of referring source
7. Determine amount of education

II. Medical Section

A. Goals
1. Obtain a history of previous sexually transmitted diseases
2. Provide the patient with a basic knowledge of the disease
3. Establish the foundations for motivations
4. Analyze the patient's medical status

B. Method — educational discussion of patient's disease
1. Establish a history of STD tests
2. Establish a history of past STD
3. Obtain a detailed history of current or recent symptoms
4. Outline modes of transmission
5. Introduce the concept of the incubation period
6. Introduce the concept of asymptomatic disease
7. Demonstrate the signs of early disease
8. Analyze the patient's sexual patterns

III. Transition

A. Goals
1. Provide an understandable critical period
2. Set the stage for positive response to the request for contacts

B. Method
1. Utilize positively phrased statements
2. Avoid apologetic wording or voice inflection
3. Maintain a high degree of expectancy
4. Provide for a smooth cross-over into contact elicitation

IV. Contact and Location Information Section

A. Goals
   1. Elicit names of all critical period contacts
   2. Elicit names of all pertinent suspects
   3. Elicit complete locating information for all persons named

B. Method — positive motivational and problem solving approach toward:
   1. Elicitation of contacts' names
   2. Elicitation of accurate exposure dates
   3. Elicitation of exposure frequencies
   4. Elicitation of locating information
   5. Elicitation of suspects' names
   6. Elicitation of suspect locating information
   7. Determined persistence in pursuit of goals

V. Interview Conclusion

A. Goals
   1. Arrange for a reinterview if necessary
   2. Arrange for treatment follow-up if indicated

B. Method
   1. Set date, time, and place of reinterview
   2. Encourage appointment for follow-up examination

GUIDELINES FOR CONTACT TRACING

OBJECTIVES OF CONTACT TRACING

(1) To inform contacts of their risk.
(2) To educate contacts about disease transmission and symptomatology.
(3) To ensure that contacts are appropriately managed.

Contact tracing should be initiated as soon as possible after the interview of a diagnosed case has been conducted. Contacts should be informed of their risk during a **face-to-face meeting**. This is critical because:

- it is imperative to correctly identify the contact as the person being sought.
- teaching and learning is most successful in a face-to-face situation.
- this method stresses the seriousness and importance of the situation.
- it enables the contact to appreciate the public health nurse's efforts to maintain confidentiality.

The telephone will often be utilized to set up face-to-face meetings and in some situations may be the only means of informing contacts of risk.

INFORMING THE CONTACT:

- Identify the contact as the person you are looking for.
- Ensure privacy for your conversation.
- Inform the contact of risk in a positive manner.
- Respond to questions in an honest manner, always maintaining absolute confidentiality regarding the source of the information.
- Obtain history of any symptoms.
- Provide teaching in relation to the infection that the contact has been exposed to:
  (a) causative agent
  (b) manner of transmission
  (c) sites of exposure
  (d) asymptomatic versus symptomatic disease
- Explain expectations and rationale, e.g. "It is important that you see your doctor within two days so that appropriate tests can be done and treatment given."
- Where necessary, assist with the making of an appointment for a medical assessment. Ideally, this assessment should be carried out within two days of the interview.
- Leave a phone number for contact to call if the contact wishes to do so.

Having visited with the contact, the public health nurse should then notify the appropriate physician prior to the contact's appointment time. The public health nurse should inform the physician of the following:

- reason for contact's proposed visit.
- history obtained re: symptoms, lack of symptoms, sites to be tested
- recommended treatment.

This allows the physician to prepare for the contact's visit, ensure that the appropriate tests are done and that the proper epidemiologic treatment is given.

The public health nurse should then check with the physician's office to verify that the contact kept the appointment. This communication with the physician's office should be done within 24 hours of the contact's appointment time. If the contact has defaulted on the appointment, efforts should be made to locate the

contact and determine why the appointment was not kept. A new appointment should be made. If the contact has kept the appointment, the public health nurse should then check with the physician's office in one week to determine test results. If the contact presents clinical symptoms, it may be advisable to interview for sex partners at that time and to retain this information until the results of laboratory investigations are available. If the test results are negative, the interview data must be discarded.

The information regarding the contact investigation should be reported to STD Control on an appropriate form. Any additional information i.e. date of birth, next of kin, place of employment, aliases etc., should also be added to the contact information prior to its return.

EDUCATION

Specialist staff from the STD Control Section are available to the regions to provide educational sessions. The regions are encouraged to utilize the expertise of the STD staff so that the regions can provide case and contact management as outlined in the program guidelines. It is important that all those involved in STD diagnosis, treatment and follow-up have the opportunity to attend lectures, seminars and workshops which are planned and delivered jointly by the region and the STD Control Section.

NURSING EDUCATION

A course designed for STD Control termed "Epidemiology I" is available to all nurses and physicians working in the regions. The course is of three days duration and is designed to assist nurses to work comfortably and effectively with STD patients. The content includes:

1. A review of the disease process of the major sexually transmitted diseases.
2. Total case management.
3. Interviewing techniques.
4. Contact tracing.
5. STD in children.
6. STD and the law.
7. Completing forms for STD Control in Manitoba.

Lectures and seminars will be provided for nurses working in such areas as institutions, doctor's clinics, hospitals, etc. These sessions will be jointly planned and, where possible, delivered by regional and STD Control Section staff. Lectures on the management of sexually transmitted diseases are provided to all schools of nursing as part of their curriculum on communicable diseases.

8. Orientation of new staff to the STD program is available to all regions. This orientation is strongly recommended.

Please direct all requests and inquiries re nursing education to the Program Co-ordinator at the STD Control Section 945-6791.

PHYSICIAN EDUCATION

Most physician education is on a consulting basis with the infectious disease consultant to the STD Control Section, the Director of the STD Control Section and a nursing specialist. Other avenues of education are available through:

(a) seminars
(b) conferences
(c) lectures
(d) regional meetings
(e) newsletters

Please direct all requests for physician education to the Director of the STD Control Section or the Program Co-ordinator 945-6791.

PUBLIC EDUCATION

The STD Control Section recognizes the need to inform the public of the potential risk and complications of STD.

This is done by:

(1) planning and delivering provincial public awareness campaigns.
(2) providing consultation to regions interested in planning a regional campaign.
(3) preparing public health nurses, health educators etc. to inform the public through interest groups, classes etc.
(4) preparing pamphlets, posters and other informational material on STD for distribution to the public.

DRUGS FOR TREATMENT OF SEXUALLY TRANSMITTED DISEASES

Drugs for the curative treatment of notifiable sexually transmitted diseases (STD) are available **free of charge** from the STD Control Section, to all physicians in private practice, health centres and clinics in Manitoba. These drugs are stored and distributed by the Misericordia General Hospital Pharmacy. Federal Medical Services provide drugs to all nursing stations and hospitals supply their own drugs for the treatment of STD.

Only those drugs included in the Recommended Treatment Schedule are available.

An initial supply can be sent to individual physicians or clinics and replacement stock will be sent upon request.

These drugs are also available at regional health units throughout the province of Manitoba.

DRUGS AVAILABLE

- Ampicillin
- Aqueous Procaine Penicillin G (APPG, Wycillin)
- Benzathine Penicillin (Bicillin)
- Erythromycin
- * Spectinomycin (Trobicin)
- * Trimethoprim/Sulfamethoxazole (TMP/SMX)
- Tetracycline
- Probenecid

* Available when penicillinase-producing *Neisseria gonorrhoeae* is suspected or confirmed.

For assistance with concerns in obtaining drugs or supplies — write to:

Gillian Armstrong
Attention: Pharmacy, Misericordia General Hospital
99 Cornish Avenue
Winnipeg, Manitoba
R3C 1A2

or call 788-8235 during working hours.
Calls regarding emergencies can be made after hours to 774-6959.

GENERAL DIAGNOSTIC METHODS

The basis of all STD control programs is prompt and accurate diagnosis of cases followed by appropriate therapy and investigation of contacts.

The classical components of diagnosis of disease are a history, a physical examination, and appropriate investigation. With STD, it is particularly important that information is collected in a manner that establishes rapport between the case and clinician, assures accurate definition of the problem(s), and leads to successful case management.

In many instances the clinician obtaining this information will be a physician. However, nurse clinicians also play an important role in diagnosis, especially in remote areas and in community clinics.

GUIDE TO DIAGNOSTIC APPROACH WHERE STD IS SUSPECTED

1. Basic medical history:
   (a) Reason(s) for attendance
   (b) Problem description:
      (1) Symptom(s): onset, character, periodicity, duration, and relationship to sexual intercourse and urination.
      (2) Similarity to previous problems.
      (3) Medical problems of sex partner(s).
   (c) Occurrence, dates and treatments for previous STD.
   (d) Review of recent sexual activity:
      (1) Time since last sexual exposure.
      (2) Specific exposure site(s).
      (3) Illness among recent partner(s).
   (e) Other relevant history:
      (1) Recent antibiotic use: type, purpose, duration.
      (2) Drug allergy: drug, type of reaction, date.
      (3) Women only: date of last menses, unusual aspects of last menses, birth control method (if none, evaluate desire for family planning).
2. Routine physical examination:
   (a) For women:
      (1) Inspection of skin of face, trunk, forearms, palms and soles.
      (2) Inspection of oral mucosa and pharynx.
      (3) Inspection of pubic hair for lice and nits.
      (4) Inspection of external genitalia, perineum, and anus.
      (5) Examination of vagina and cervix using speculum.
      (6) Bimanual pelvic examination.
      (7) Examination for relevant lymphadenopathy.
   (b) For men:
      (1) Inspection of skin of face, trunk, forearms, palms and soles.
      (2) Inspection of oral mucosa and pharynx.
      (3) Inspection of pubic hair for lice and nits.
      (4) Inspection of penis including meatus, retraction of foreskin, and expression of any discharge from urethra.
      (5) Palpation of scrotal contents.

(6) Inspection of anus.
(7) Examination for relevant lymphadenopathy.

(c) For children:
(1) General physical examination.
(2) Inspection of the external genitalia and anus.
(3) Speculum examination is not routinely indicated in prepubertal girls.

3. Routine laboratory tests include:

(a) For women:
(1) Serologic test for syphilis (STS) at every visit. This may not be necessary if there is documentation of a negative test within the previous 90 days.
(2) Endocervical specimen for gonorrhea detection.
(a) culture on selective medium, or
(b) antigen detection, e.g. gonozyme
(3) Oropharyngeal and/or rectal culture for gonorrhea on selective medium when history indicates exposure or symptoms.
(4) Endocervical specimen for chlamydia by antigen detection, e.g. chlamydiazme.
(5) Cervical cytologic examination (pap smear) for those who have not had one in the past 12 months. (There is an association between some STDs and carcinoma of the cervix.)

(b) For men:
(1) STS at every visit. This may not be necessary if there is documentation of a negative test within the previous 90 days.
(2) Urethral gram stain is taken when patients give a history of recent discharge or if discharge is present on physical examination.
(3) Urethral specimen for gonorrhea:
(a) culture on selective medium, or
(b) antigen detection, e.g. gonozyme
(4) Oropharyngeal and/or rectal culture for gonorrhea on selective medium if history indicates exposure or symptoms.
(5) Urethral specimen for chlamydia by antigen detection, e.g. chlamydiazme.

(c) For children:
(1) Serologic test for syphilis.
(2) Specimen (vaginal for prepubertal girls, urethral for boys) for gonorrhea detection
(a) culture, or
(b) antigen detection, e.g. gonozyme.
(3) Specimen (vaginal for prepubertal girls, urethral for boys) for chlamydia detection. See laboratory methods.
(4) Rectal and pharyngeal cultures on selective medium for gonorrhea should be performed prior to treatment if vaginal or urethral discharge is present.

NOTIFIABLE SEXUALLY TRANSMITTED DISEASES

The following sections contain specific information regarding diagnosis, treatment and follow-up of the five sexually transmitted diseases which are reportable in Manitoba: syphilis, gonorrhea, chlamydia, chancroid and Acquired Immunodeficiency Syndrome (AIDS) and Human Immunodeficiency Virus (HIV) infections. Some of the information in this section is deliberately repeated in other sections since different sections of these guidelines are intended to be, to some extent, independent.

SYPHILIS

ETIOLOGY: Syphilis is caused by a spirochete *Treponema pallidum*.

CLINICAL: The natural course of syphilis is arbitrarily divided into the following stages:

i) an incubation period of about three weeks (10-100 days).
ii) a primary stage characterized by a non-painful chancre marking the point of entry of *T. pallidum* and regional lymphadenopathy.
iii) a secondary bacteremic stage associated with generalized mucocutaneous lesions and lymphadenopathy which occurs 4-6 weeks after the chancre and may persist for 12 months.
iv) a period of subclinical infection (latent syphilis) detected only by serologic testing.
v) a late or tertiary stage characterized by progressive disease involving principally the ascending aorta and/or central nervous system.

Primary, secondary and early latent syphilis are considered to be infectious.

INCUBATION PERIOD: Ten to 100 days, usually three weeks.

COMMUNICABILITY:

Variable. Syphilis is infectious during primary and secondary stages and also in mucocutaneous recurrences. Congenital transmission is most probable during primary and secondary maternal syphilis but can occur in the latent period. Adequate penicillin treatment usually ends infectivity within 24-48 hours.

SEROLOGIC TESTS FOR SYPHILIS

Serologic tests for syphilis are indispensable for diagnosis of individual patients, for following the effect of therapy and for screening purposes. They detect antibodies formed during the course of syphilitic infection and are of two basic types:

1. Reagin or Non-treponemal tests

Reaginic antibodies are immunoglobulins directed against a lipoidal antigen that results from the interaction of host tissues with *T. pallidum* and/or from *T. pallidum* itself.

The standard reagin test is the Venereal Disease Research Laboratory (VDRL) slide test in which heated serum is tested for its ability to floculate a suspension of cardiolipin-lecithin antigen. The rapid plasma-reagin card test (RPR) or the automated reagin test (ART) based on the same general principles, are more sensitive than the VDRL.

Reports from the Cadham Provincial Laboratory (CPL) refer to the VDRL as the screening test. (However, quantitation of antibodies is measured by RPR.)

Serial reagin tests are useful to determine the stage of the disease; a four fold rise in titre may indicate:

— a recent infection,
— re-infection in an adequately treated patient,
— relapse in an inadequately treated person, or
— rarely, an acute false positive reaction.

Adequate treatment of infectious syphilis is indicated by a four-fold or greater decline in titre within one year.

Titres should generally become non-reactive or weakly reactive in 12 months following treatment of primary syphilis and in 24 months after treatment for secondary syphilis. Treatment of late latent or late syphilis usually has little or no effect on the titre and should not be used to gauge the adequacy of the treatment. Titres tend to become lower with time, but frequently remain reactive in low titre.

Prozonal Reaction.

A prozone reaction occurs in nontreponemal tests when an excess amount of anticardiolipin (reaginic) antibody interferes with the test result. Under these circumstances the laboratory may report the serum as weakly reactive, atypical or even non-reactive. The inhibitory effects of the excess antibody can be overcome by diluting the serum. This may occur in 1 to 2% of individuals with secondary syphilis and the occurrence of this phenomenon must be recognized. Indicating the clinical history on the requisition allows the laboratory to perform other tests e.g. confirmatory test.

2. Specific Treponemal tests

Confirmatory Test

T. pallidum hemagglutination assay (TPHA-TP), or microhemag-glutination assay for *T. pallidum* (MHA-TP) also measures specific treponemal antibody, is easier to perform than the FTA-abs, and is as specific as the FTA-abs, though slightly less sensitive during primary disease. Reports from CPL refer to this as the confirmatory test.

Reference Test

Fluorescent treponemal antibody-absorption (FTA-abs) test is an indirect immunofluorescent antibody test using *T. pallidum* from rabbit testis as the antigen. Its interpretation is subjective and requires great attention to detail. Its principal use is to verify the diagnosis of syphilis. It usually remains positive for life. Reports from CPL refer to this as the reference test.

The comparative reactivities of these tests are shown in Table I.

TABLE I
COMMONLY USED SEROLOGIC TESTS FOR SYPHILIS

TEST	SENSITIVITY*	
	Primary	**Secondary**
I. Non-treponemal (reaginic) tests		
1) VDRL	70%	99%
2) RPR	80%	99%
II. Specific treponemal tests		
1) FTA-abs	85%	100%
2) TPHA-TP	65%	100%

*Percentage of cases detected by the test.

DIAGNOSIS:

In establishing a diagnosis, it is essential that the stage of syphilis be accurately assessed and documented in order to ensure appropriate management of cases and contacts.

I. Primary Syphilis

1. Chancre **plus** demonstration of *T. pallidum* either by darkfield (DF) microscopy or by direct fluorescent antibody — *T. pallidum* (DFA-TP) techniques in material from a chancre or regional lymph node. (See Appendix C)

or

2. Chancre **plus** (a) positive reagin tests plus positive specific treponemal test and no previous history of syphilis.

or

(b) 4-fold rise in reagin test plus positive specific treponemal test in a previously treated case.

or

(c) history of exposure within 10-100 days to a partner with a confirmed diagnosis of infectious syphilis.

Note: The existence of a chancre is essential to the diagnosis and an intensive search should be made for it on the external genitalia, anal canal, vagina, cervix and oropharynx.

II. Secondary Syphilis

Clinical signs* plus positive reagin tests and positive specific treponemal tests. A positive DF or FA on an aspirate from skin lesions or lymph nodes confirms the diagnosis.

*Clinical signs include:

1. Skin rash: bilateral symmetrical macular, papular, follicular, papulosquamous, or pustular skin lesions.
2. Condylomata lata (syphilis warts)
3. Mucous patches
4. Generalized lymphadenopathy
5. Fever and malaise
6. Splenomegaly
7. Alopecia areata
8. Iritis.

Note: The diagnosis of secondary syphilis requires clinical evidence of disease.

III. Early Latent

Asymptomatic patient with reactive reagin tests and positive treponemal tests who is known to have had within the previous 12 months:

a) non-reactive serological tests.

or

b) symptoms highly suggestive of primary or secondary syphilis.

or

c) exposure to a sex partner with confirmed infectious syphilis.

IV. Late Latent

Asymptomatic patient with:

a) newly discovered reactive reagin tests and positive treponemal tests and who does not meet the other criteria for early latent syphilis.

and

b) central nervous system involvement ruled out by examination of cerebrospinal fluid (see neurosyphilis).

Note: In both early and late latent syphilis, no clinical signs of infection are present.

V. Late Syphilis

A broad range of signs and symptoms particularly involving the central nervous system (CNS) and/or cardiovascular system plus reactive reagin or treponemal tests.

NEUROSYPHILIS is a form of late syphilis, in which the following abnormalities are present in the cerebrospinal fluid (CSF):

a) positive reagin test in CSF

and/or

b) elevated cells and/or elevated protein in CSF.

CNS symptoms may or may not be present.

VI. Congenital Syphilis

Syphilitic infection of the fetus depends both upon duration of infection in the mother (the longer the duration of an untreated infection, the less likely that the fetus will be infected) and the stage of pregnancy at which maternal infection is acquired (fetal infection is less common during the first trimester of pregnancy).

Infection of the fetus may result in:

(1) Intrauterine death and stillbirth.
(2) A liveborn infant with active (secondary) lesions.
(3) A liveborn infant who develops secondary lesions during infancy.
(4) A liveborn child who develops late manifestations particularly around puberty.

Signs of congenital syphilis:

- interstitial keratitis
- nerve deafness
- developmental anomalies of teeth and skull
- periosteal involvement of tibial bones
- nasal discharge
- skin lesions

Criteria for early congenital syphilis:

1. Early congenital syphilis is diagnosed definitively when *T. pallidum* is demonstrated by darkfield (or FA) examination of material from nasal discharges or skin lesions of a neonate.

2. A presumptive diagnosis applies to any infant in whom a ≥ four-fold increase in titer over the infant's previous titer is demonstrated. A presumptive diagnosis is made in symptomatic neonates with reactive reagin tests if their mothers were not treated adequately for syphilis.
NOTE: If the neonate is asymptomatic, has a positive serology, and the mother was not treated adequately for her infection with penicillin, the baby should be treated without awaiting criteria for a presumptive diagnosis.
NOTE: A peripheral blood sample from the baby and not cord blood, should be sent for testing along with a sample of the mother's blood. An FTA-ABS for the detection of specific IgM antibodies will be performed on the baby's blood.

MANAGEMENT OF SYPHILIS CASES:

1. Immediate antimicrobial therapy for all cases of infectious syphilis.
2. Interview within one working day whenever possible.
3. Evaluation one week after onset of therapy to document clinical response.
4. Repeat reagin tests:
   (a) infectious syphilis and congenital syphilis at 3, 6 and 12 months after treatment.
   (b) syphilis of more than one years duration at 3, 6, 12 and 24 months after treatment.
   (c) neurosyphilis should be managed in consultation with an infectious disease specialist.
5. Retreatment should be considered when:
   (a) clinical signs or symptoms of syphilis persist or recur.
   (b) there is a 4-fold increase in titre with a reagin test.
   (c) a reagin test showing a high titre initially fails to show a 4-fold decrease within a year.

Patients who require retreatment should be retreated according to the schedules recommended for syphilis of more than 1 year's duration. In general, a patient should be re-treated only once since patients may maintain stable, low titres when nontreponemal tests are used or may have irreversible anatomical damage.
All cases of infectious syphilis should abstain from sexual activity until they and their sex partners are appropriately treated and clinical signs are no longer present.

EVALUATION OF SEX CONTACTS:

It is extremely important that **all** relevant sex contacts of cases of infectious syphilis be identified and evaluated promptly.

Patient's Stage	Examine All Sex Contacts Exposed:
PRIMARY SYPHILIS	— during the 3 months prior to onset of chancre. and Up to and including the interview date, e.g. chancre was first noted on June 3, the patient was treated on June 15 and interviewed on June 16; the interview period is March 3 up to and including June 16.
SECONDARY SYPHILIS	— during the 6 months prior to onset of clinical symptoms. and Up to and including the interview date, e.g. palmar rash was noted on August 6, the patient was diagnosed, interviewed and treated on August 9; the interview period is from February 6 up to and including August 9.
EARLY LATENT	— during the 12 months prior to making the diagnosis, e.g. the patient is diagnosed on May 3 and interviewed on May 4; the interview period is May 4 of the preceding year to May 4 of the present year.

If, however, the interviewer can elicit the following history, the interview period can be established more accurately.

(a) If the patient has had a negative VDRL in the last year, he is interviewed back 3 months from the date of the negative VDRL.

(b) If the patient gives a **reliable** description of a primary chancre, he can be interviewed 3 months back from the first day of the appearance of the chancre.

(c) If the patient gives a reliable description of secondary symptoms he can be interviewed 6 months back from the first day of the appearance of the secondary symptoms.

NON-INFECTIOUS SYPHILIS:	— syphilis of over 1 year's duration, includes the stages of late latent and late syphilis including neurosyphilis and cardiovascular syphilis)
	— Only those contacts who have been regular long term sex partners need to be investigated.

CHILDREN OF PATIENTS WITH NON-INFECTIOUS SYPHILIS

It is suggested that children of these patients be determined to be of good health and free of the sequelae of congenital syphilis. If any child shows evidence of congenital syphilis, serologic tests for syphilis (both reaginic and specific treponemal tests) should be done on all children of the family. If the results are positive, further investigation is indicated. (See Congenital Syphilis)

MANAGEMENT OF CONTACTS:

All sex partners should be clinically evaluated (see General Diagnostic Methods) and have a screening (reagin) test for syphilis.

Persons who have been exposed to infectious syphilis within the preceding 3 months should be epidemiologically treated as for early syphilis.

TREATMENT:

Recommended Treatment Regimens

I. Infectious Syphilis

Infectious syphilis (primary, secondary, early latent syphilis) should be treated with:

Benzathine penicillin G: 2.4 million units total, IM, in divided doses, at a single session

PENICILLIN-ALLERGIC PATIENTS

Patients who are allergic to penicillin should be treated with:

Tetracycline HCL: 500 mg, by mouth, 4 times a day for 15 days

Tetracycline appears to be effective, but has been evaluated less extensively than penicillin. Patient compliance with this regimen may be difficult, so care should be taken to encourage optimal compliance.

Penicillin-allergic patients who cannot tolerate tetracycline should have their allergies confirmed. For these patients there are 2 options:

1. If compliance and serologic follow-up can be assured, administer *erythromycin* 500 mg, by mouth, 4 times a day for 15 days.
2. If compliance and serologic follow-up cannot be assured, the patient should be managed in consultation with an expert.

II. Syphilis of More Than One Year's Duration

The optimal treatment schedules for syphilis of greater than 1 year's duration have been less well established than schedules for early syphilis. In general, syphilis of longer duration requires more prolonged therapy.

Examination of cerebrospinal fluid is recommended for patients with syphilis of greater than 1 year's duration to exclude neurosyphilis.

Therapy is recommended for established cardiovascular syphilis. However, antibiotics may not reverse the pathology associated with this disease.

Syphilis of more than 1 year's duration, (latent syphilis of indeterminate or more than 1 year's duration, cardiovascular, or late benign syphilis) **except** neurosyphilis should be treated with:

Benzathine penicillin G: 2.4 million units, IM, in divided doses, once a week for 3 successive weeks (7.2 million units total)

PENICILLIN-ALLERGIC PATIENTS

There are no published clinical data that adequately document the efficacy of drugs other than penicillin for syphilis of more than 1 year's duration. Cerebrospinal fluid examinations should be performed before initiating therapy with these regimens.

Patients who are allergic to penicillin should be treated with:

Tetracycline HCL: 500 mg, by mouth, 4 times a day for 30 days. Patient compliance with this regimen may be difficult, so care should be taken to encourage optimal compliance.

Penicillin-allergic patients who cannot tolerate tetracycline should have their allergies confirmed. For these patients there are 2 options:

1. If compliance and serologic follow-up can be assured, administer *erythromycin* 500 mg, by mouth, 4 times a day for 30 days.
2. If compliance and serologic follow-up cannot be assured, the patient should be hospitalized and managed in consultation with an expert.

CEREBROSPINAL FLUID EXAMINATION

Cerebrospinal fluid (CSF) examination should be done for patients with clinical symptoms or signs consistent with neurosyphilis. This examination is also recommended for other patients with syphilis of greater than 1 year's duration to exclude asymptomatic neurosyphilis.

Neurosyphilis

Potentially effective regimens, none of which have been adequately studied, include:

Aqueous crystalline penicillin G: 12-24 million units, IV, per day (2-4 million units every 4 hours) for 10 days, followed by *benzathine penicillin G*, 2.4 million units, IM, in divided doses, weekly for 3 doses.

OR

Aqueous procaine penicillin G: 2.4 million units, IM, daily plus *probenecid* 500 mg, by mouth, 4 times a day, both for 10 days, followed by *benzathine penicillin G*, 2.4 million units, IM, weekly for 3 doses.

PENICILLIN-ALLERGIC PATIENTS

Patients with histories of allergy to penicillin should have their allergy confirmed and be managed in consultation with an expert.

III. Syphilis in Pregnancy

Evaluation of Pregnant Women

All pregnant women should have a nontreponemal serologic test for syphilis, such as the VDRL or RPR test, at the time of the first prenatal visit. (The treponemal tests such as the FTA-ABS test should not be used for routine screening.) For women suspected of being at high-risk for syphilis, a second nontreponemal test should be done during the third trimester.

If the mother is known to have positive syphilis serology and is inadequately treated, the following should be obtained on the infant venous blood:

1. VDRL
2. MHA-TP
3. IGM-FTA (Abs)

The baby should be carefully examined for any signs of congenital syphilis.

Seroreactive patients should be expeditiously evaluated. This evaluation should include a history and physical examination, as well as a quantitative nontreponemal test and a confirmatory treponemal test.

If the FTA-Abs test is nonreactive and there is no clinical evidence of syphilis, treatment may be withheld. Both the quantitative nontreponemal test and the confirmatory test should be repeated within 4 weeks. If there is clinical or serologic evidence of syphilis or if the diagnosis of syphilis cannot be excluded with reasonable certainty, the patient should be treated as outlined below.

Patients for whom there is documentation of adequate treatment for syphilis in the past need not be treated again unless there is clinical or serologic evidence of reinfection such as darkfield-positive lesions or a four-fold rise in titre when a reagin test is used.

RECOMMENDED TREATMENT REGIMENS

Patients at all stages of pregnancy should be treated with penicillin used in dosage schedules appropriate for the stage of syphilis as recommended for the treatment of nonpregnant patients.

PENICILLIN-ALLERGIC PATIENTS

For patients at all stages of pregnancy who have documented allergy to penicillin:

1. If compliance and serologic follow-up can be assured, administer erythromycin in dosage schedules appropriate for the stage of syphilis as recommended for the treatment of non-pregnant patients. Infants born to mothers treated with erythromycin during pregnancy for infectious syphilis should be treated with penicillin.
2. If compliance and serologic follow-up cannot be assured, the patient should be hospitalized and managed in consultation with an expert.

Tetracycline is not recommended in pregnant women because of potential adverse effects on the fetus.

FOLLOW-UP

Women who have been treated for infectious syphilis during their pregnancy should have monthly quantitative nontreponemal serologic tests for the remainder of the current pregnancy. Women who show a four-fold rise in titre should be treated again. After delivery, follow-up is as outlined for nonpregnant patients.

IV. Congenital Syphilis

Congenital syphilis may occur if the mother has syphilis during pregnancy. If the mother has received adequate penicillin treatment during pregnancy, the risk to the infant is minimal. However, all infants should be examined carefully at birth and at frequent intervals thereafter until nontreponemal serologic tests are negative.

Infected infants are frequently asymptomatic at birth and may be seronegative if the maternal infection occurred late in gestation. Infants should be treated at birth if maternal treatment was inadequate, unknown, or with drugs other than penicillin, or if adequate follow-up of the infant cannot be ensured.

NOTE: Infants with congenital syphilis should have a CSF examination before treatment.

SYMPTOMATIC INFANTS OR ASYMPTOMATIC INFANTS WITH ABNORMAL CEREBROSPINAL FLUID

Aqueous crystalline penicillin G: 50,000 units/kg, IM or IV, daily in 2 divided doses for a minimum of 10 days

or

Aqueous procaine penicillin G: 50,000 units/kg, IM, daily for a minimum of 10 days.

ASYMPTOMATIC INFANTS WITH NORMAL CEREBROSPINAL FLUID

Benzathine penicillin G: 50,000 units/kg, IM, in a single dose.

Although benzathine penicillin has been previously recommended and widely used, published clinical data on its efficacy in congenital neurosyphilis are lacking. If neurosyphilis cannot be excluded, the aqueous crystalline or procaine penicillin regimen is recommended. Only penicillin regimens are recommended for neonatal congenital syphilis.

After the neonatal period, penicillin therapy for congenital syphilis should be with the same dosages used for neonatal congenital syphilis. For larger children the total dose of penicillin need not exceed the dosage used in adult syphilis of more than 1 years duration. After the neonatal period, the dosage of tetracycline for congenital syphilis in patients who are allergic to penicillin should be individualized but need not exceed dosages used in adult syphilis of more than one years duration. Tetracycline should not be given to children less than eight years of age.

SCREENING GUIDELINES FOR SYPHILIS

Recommended for:

1) The following high risk individuals should have screening tests every three months
   - persons with multiple sex partners
   - individuals with repeated STD
   - partners of the above
2) Persons presenting with any sexually transmitted disease
3) Prenatals
   - routinely in first trimester
   - high risk as outlined above

GONORRHEA

ETIOLOGY: *Neisseria gonorrhoeae*, a gram negative diplococcus.

CLINICAL PRESENTATION:

1. Genitourinary

MALE

- 20-40% asymptomatic
- purulent urethral discharge
- dysuria
- edema & erythema around the urinary meatus

Complications

- epididymitis

FEMALE

- up to 80% asymptomatic
- cervicitis or urethritis
- vaginal discharge scant to copious
- dysuria

Complications

- oophoritis, endometritis, salpingitis, peritonitis } also referred to as pelvic inflammatory disease (PID)
- ectopic pregnancy
- infertility

2. Pharyngeal — generally considered to be asymptomatic
   At risk are those persons who engage in oro-genital sexual activity
3. Rectal gonorrhea
   - often asymptomatic
   - mucoid discharge
   - tenesmus
   - blood streaked stool

   Routine culture taken from the rectum of females will increase the yield by 3-5%.
   Rectal infection in males is indicative of homosexual exposure.

INCUBATION PERIOD: Usually 2-7 days, sometimes longer.

COMMUNICABILITY: May extend for months if untreated especially in asymptomatic persons. Effective therapy usually ends communicability within hours.

DIAGNOSIS:

Male:

Any one of:

1. Intracellular gram-negative diplococci (GND) present on gram stain of urethral exudate

   or

2. *N. gonorrhoeae* isolated on culture of urethral exudate **or** any other site i.e. pharynx, rectum, or eye

   or

3. Positive antigen detection test on urethral exudate e.g. gonozyme

   or

4. Urethral discharge in a male with history of sexual contact with a laboratory-confirmed case in the preceding 2-7 days. Laboratory confirmation should always be sought in this situation.

Female:
Any one of:

1. *N. gonorrhoeae* isolated on culture from endocervical secretions or any other site i.e. pharynx, rectum, or eye

or

2. Positive gonococcal antigen detection test on urethral/cervix exudate e.g. gonozyme

or

3. Vaginal discharge in a female with history of sexual contact with a laboratory-confirmed case in the preceeding 2-7 days. Laboratory confirmation should always be sought in this situation.

Children (less than 12 years old):

1. *N. gonorrhoeae* isolated on culture from any site.

or

2. Gram-negative diplococci present on gram stain of urethral or vaginal exudate are technically diagnostic but should always be confirmed by culture.

Note: A child presenting with a vaginal, urethral or a rectal discharge (or with any suggestion of sexual abuse) requires cultures from these three sites as well as the pharynx before the treatment is initiated.

Newborn: *N. gonorrhoeae* isolated by culture from any site i.e. urethra, vagina, rectum, pharynx, eyes, umbilicus.

ANTIBIOTIC-RESISTANT N. GONORRHOEAE

Infections due to resistant organisms like penicillinase-producing *N. gonorrhoeae* (PPNG), tetracycline or spectinomycin-resistant *N. gonorrhoeae* are clinically indistinguishable from those due to susceptible strains and can only be diagnosed by culture technique. They constitute a public health emergency and must be **treated and investigated promptly when diagnosed**.

MANAGEMENT OF CASE

1. Serologic test for syphilis if not done within preceding 3 months.
2. Immediate antimicrobial therapy according to exposed sites.
3. Interview within five working days.
   Repeaters (persons with more than one documented episode of STD in the preceding 12 months) women with PID, individuals with PPNG and other high risk individuals should be interviewed within one working day.
4. Test of cure 3-5 days after completion of therapy for repeaters, women with PID, individuals with PPNG, other high risk individuals, and in children under 12.

Cases should abstain from sexual contact until they and their contacts have completed a course of therapy.

MANAGEMENT OF GONOCOCCAL INFECTIONS IN PREGNANCY, AT DELIVERY AND IN THE POST NATAL PERIOD

All high risk pregnant women should have endocervical tests for *Neisseria gonorrhoeae*.

If women are found to have gonorrhea during pregnancy or at the time of delivery, they should be treated with drug regimens of amoxicillin, ampicillin or aqueous procaine penicillin, each with probenecid as described elsewhere. Women who are allergic to penicillin or probenecid should be treated with *spectinomycin* 2.0 g IM. *Erythromycin* in the dosage recommended under chlamydial infection can be added to treat coexistent chlamydial infection. Tetracycline should not be used in pregnant women because of potential adverse effects for the fetus.

The most common form of gonococcal infection in infants who are born to mothers with **untreated** gonorrhea is conjunctival infection, but the mucous membranes of the vagina, urethra, pharynx or rectum may also be colonized and therefore all sites should be tested.

At birth these infants should be treated with a single injection of *aqueous crystalline penicillin* G 50,000 units IM or IV for full term infants or 20,000 units IM or IV for low birth weight infants. Topical prophylaxis for neonatal opthalmia is not adequate treatment for infections at other sites and clinical illness requires additional treatment.

Mothers who are found to have gonorrhea in the postnatal period should be investigated for possible co-existing sexually transmitted diseases i.e. *Chlamydia trachomatis*. The mother should be treated appropriately with a combined regimen of penicillin and tetracycline (erythromycin if breast feeding).

The baby should be examined carefully for ophthalmia neonatorium, vulvovaginitis, urethritis, pharyngitis or disseminated disease. If infection is suspected, the appropriate site(s) should be tested.

If six weeks or more have elapsed since birth and the infant has no clinical evidence of disease, it may not be necessary to perform tests.

EVALUATION OF SEX PARTNERS:

All sex contacts at risk (see below) should be examined, tested at all exposed orifices and should receive epidemiologic (prophylactic) treatment as outlined for cases. All should have a screening test for syphilis.

Case	Contacts
	Examine, test and provide epidemiologic treatment to all sex contacts exposed:
Male or Female with symptomatic uncomplicated gonorrhea	— 1 month prior to onset of symptoms in the case up to and including the interview date, e.g. case noted symptoms on June 1, was tested on June 4, diagnosed on June 6 and interviewed on June 10; the interview period is May 1 - June 10.
Male or Female with asymptomatic or complicated gonorrhea	— 3 months prior to case's diagnosis, e.g. case diagnosed on June 6 and interviewed on June 10; the interview period is March 6 - June 10.
Male or Female with repeated gonorrhea (i.e. ≥ 2 infections in the past 12 months)	— 3 months prior to diagnosis of the case, e.g. case diagnosed and treated for symptomatic gonorrhea on April 1 and again on June 6 and interviewed on June 10; the interview period is March 6 - June 10.

TREATMENT:

The following guidelines for the treatment of gonococcal infection take into account several observations:

- the increasing incidence of infections due to penicillinase-producing *N. gonorrhoeae* (PPNG); the emergence of tetracycline-resistant gonococci in several geographic areas,
- the high frequency of coexisting chlamydial and gonococcal infections, and
- the increased recognition of the serious complications of chlamydial and gonococcal infections. These guidelines do not attempt to be a comprehensive list of all possible treatment regimens. Rather, they seek to provide guidance for regimens that meet general criteria of efficacy, safety, ease of administration, and cost.

I. Uncomplicated Infection in Adults

An important concern in the treatment of gonorrhea is coexisting chlamydial infection and on theoretical grounds a combined regimen (outlined below) is very attractive. (It should be noted that its efficacy and side effects have not been evaluated.)

The combined regimen includes:

1. *Ampicillin:* 3.5 gm by mouth
   OR
   Aqueous Procaine Penicillin G: 4.8 million units IM
   (in divided doses)
   PLUS
2. *Probenecid:* 1.0 gm by mouth
   PLUS
3. *Tetracycline:* 500 mg by mouth, QID X 7 days

SPECIAL NOTE

Tetracycline or aqueous procaine penicillin G (APPG) is the preferred therapy for pharyngeal gonococcal infection. Pharyngeal infection is not effectively treated by either the amoxicillin or ampicillin regimens.

A homosexual man with uncomplicated gonococcal infection should be treated with *aqueous procaine penicillin* G 4.8 million units, plus 1.0 g of probenecid. If he is allergic to penicillin, use *spectinomycin* 2.0 g, IM, in one injection. Both of these regimens provide adequate treatment for urethral and anorectal gonococcal infection. However, spectinomycin is ineffective in the treatment of pharyngeal gonococcal infection.

OTHER CONSIDERATIONS

Patients other than homosexual men who are allergic to penicillins or probenecid should be treated with oral tetracycline. Penicillin-allergic patients who cannot tolerate tetracyclines may be treated with *spectinomycin*, 2.0 g, IM, in one injection.

Patients with incubating syphilis (seronegative without clinical signs of syphilis) are **likely** to be cured by all the above regimens except spectinomycin.

TREATMENT FAILURES

The patient in whom gonorrhea persists after treatment with one of the non-spectinomycin regimens above should be treated with 2.0 gm. of spectinomycin IM (See PENICILLINASE-PRODUCING NEISSERIA GONORRHOEAE). Recurrent gonococcal infections after treatment with the recommended schedules may be due to reinfection and indicate a need for improved contact tracing and patient education. Since PPNG infection is a cause of treatment failure, post-treatment isolates should be tested for penicillinase production.

DRUGS NOT RECOMMENDED

Although long-acting forms of penicillin (such as benzathine penicillin G) are effective in the treatment of syphilis, they have no place in the treatment of gonorrhea. Oral penicillin preparations such as penicillin V are not recommended for the treatment of gonococcal infection.

II. Penicillinase-Producing Neisseria gonorrhoeae (PPNG)

Patients with proven PPNG infection or who are likely to have acquired gonorrhea in areas of high PPNG prevalence and their sex partners should receive *spectinomycin* 2.0 g, IM, in a single injection. Tetracycline may be added to treat co-existent chlamydial infection. Patients with positive cultures after spectinomycin therapy should be treated with *cefoxitin* 2.0 g, IM, in a single injection plus *probenecid* 1.0 g, by mouth; OR *cefotaxime* 1.0 g, IM, in a single injection without probenecid. A daily single dose of nine tablets of *trimethoprim/sulfamethoxazole* (80 mg/400 mg) for five days should be used to treat pharyngeal gonococcal infection due to PPNG. Spectinomycin and cefoxitin are ineffective in pharyngeal infections.

III. Gonococcal Infections in Pregnancy

The following are recommended regimens for treatment of gonococcal infections during pregnancy:

1. *Amoxicillin:* 3.0 g by mouth
   or
   Ampicillin: 3.5 g by mouth
   or
   Aqueous Procaine Penicillin G: 4.8 m.u. IM
   (in divided doses).
   plus
2. *Probenecid:* 1.0 g by mouth
   plus
3. *Erythromycin base* 500 mg q.i.d. by mouth for 7 days

Pregnant women who are allergic to penicillin or probenecid should be treated with *spectinomycin* 2.0 g I.M. plus erythromycin as recommended above. Tetracycline should not be used in pregnant women because of potential adverse effects for the fetus.

IV. Infants Born to Mothers With Gonococcal Infections

The infant born to a mother with gonorrhea is at high risk of infection and requires treatment with a single injection of *aqueous crystalline penicillin G:* 50,000 units, IM or IV, for full-term infants or 20,000 units, IM or IV, for low-birth-weight infants. Topical prophylaxis for neonatal ophthalmia is not adequate treatment for infections at other sites. Clinical illness requires additional treatment.

V. Neonatal Gonococcal Infections

GONOCOCCAL OPHTHALMIA

Neonates with gonococcal ophthalmia should be hospitalized and isolated for 24 hours after initiation of treatment. Untreated gonococcal ophthalmia is highly contagious and may rapidly lead to blindness. *Aqueous crystalline penicillin G* 50,000 units/kg/day, IV, in two doses should be administered for seven days. Eyes should be irrigated immediately with saline or buffered ophthalmic solutions and then at least at hourly intervals as long as necessary to eliminate discharge. Topical antibiotic preparations alone are neither sufficient nor required when appropriate systemic antibiotic therapy is given. Both parents of a newborn with gonococcal ophthalmia must be tested and treated.

COMPLICATED INFECTION

Neonates with arthritis and septicemia should be hospitalized and treated with *aqueous crystalline penicillin G* 75,000 - 100,000 units/kg/day, IV, in 4 divided doses for at least seven days. Meningitis should be treated with *aqueous crystalline penicillin G* 100,000 units/kg/day, IV, divided into three or four doses and continued for at least ten days.

VI. Gonococcal Infections of Older Children (12 years)

(Please also see Management of Gonorrhea in Children)

Children who weigh 100 lbs. (45 kg) or more should receive adult regimens. Children who weigh less than 100 lbs. should be treated as follows:

UNCOMPLICATED DISEASE

Uncomplicated vulvovaginitis and urethritis can be treated at one visit with *amoxicillin* 50 mg/kg plus *probenecid* 25 mg/kg (maximum 1.0 g), both given by mouth OR with *aqueous procaine penicillin G* 100,000 units/kg, IM, plus *probenecid*, by mouth, 25 mg/kg (maximum 1.0 g). The latter regimen is recommended for proctitis and pharyngitis.

PENICILLINASE-PRODUCING NEISSERIA GONORRHOEAE

Children with infection due to PPNG should be treated with *spectinomycin* or *cefotaxime* in appropriate doses.

SPECIAL CONSIDERATIONS

Topical and/or systemic estrogen therapy are of no benefit in vulvovaginitis. Long-acting penicillins, such as benzathine penicillin G, are not effective. All children should have follow-up cultures, and the source of infection should be identified, examined, and treated.

ALLERGY TO PENICILLINS

Children who are allergic to penicillins should be treated with *spectinomycin* 40 mg/kg, IM. Children older than 8 years may be treated with *tetracycline* 40 mg/kg/day, by mouth, in 4 divided doses for 5 days. For treatment of complicated disease, the alternative regimens recommended for adults may be used in appropriate pediatric dosages.

VII. Gonococcal Ophthalmia in Adults

Adults with gonococcal ophthalmia should be hospitalized and treated with *aqueous crystalline penicillin G*: 10 million units, IV, daily for 5 days. For PPNG, use *cefoxitin* 1.0 g or *cefotaxime* 500 mg, IV, 4 times a day. Eyes should be irrigated immediately with saline or buffered ophthalmic solutions and then at least at hourly intervals as long as necessary to eliminate discharge. Cases must have careful ophthalmic follow-up to deal with ocular complications.

VIII. Disseminated Gonococcal Infection

Hospitalization is usually indicated, especially for those who cannot reliably comply with treatment, have uncertain diagnosis, or have purulent joint effusions or other complications.

There are several, acceptable treatment schedules for the gonococcal arthritis-dermatitis syndrome. These include the following:

Aqueous crystalline penicillin G: 10 million units, IV, per day until improvement occurs, followed by amoxicillin 500 mg or ampicillin 500 mg, by mouth, four times a day to complete at least seven days of antibiotic treatment.

or

Amoxicillin/ampicillin: amoxicillin 3.0 g or ampicillin 3.5 g, by mouth, each with probenecid 1.0 g, followed by amoxicillin 500 mg or ampicillin 500 mg, by mouth, four times a day for at least seven days.

or

Tetracycline HCL: 500 mg, by mouth, four times a day for at least seven days. Tetracycline HCL should not be used for complicated gonococcal infection in pregnant women.

or

Cefoxitin/cefotaxime: cefoxitin 1.0 g or cefotaxime 500 mg, either given four times a day IV for at least seven days (treatment of choice for disseminated infections caused by PPNG).

or

Erythromycin: 500 mg, by mouth, four times a day for at least seven days.

SPECIAL CONSIDERATIONS

Open drainage of joints other than the hip is not indicated. Intraarticular injection of antibiotics is unnecessary.

IX. Acute Pelvic Inflammatory Disease (PID)

(Endometritis, Salpingitis, Parametritis, and/or Peritonitis)

Acute pelvic inflammatory disease refers to the acute clinical syndrome attributed to the ascending spread of microorganisms, unrelated to pregnancy or surgery, from the vagina and endocervix to the endometrium, fallopian tubes, and/or contiguous structures.

Etiologic agents include *N. gonorrhoeae*, *C. trachomatis*, anaerobic bacteria and facultative gram-negative rods. In the individual patient it is often impossible to differentiate among these agents. Therefore, treatment regimens should be used that are active against the broadest range of these pathogens.

INPATIENT TREATMENT

- Regimen A:
  Doxycycline: 100 mg, IV, twice a day
  plus
  Cefoxitin: 2.0 g, IV, 4 times a day

Continue drugs IV for at least 4 days and at least 48 hours after patient improves. Continue *doxycycline* 100 mg, by mouth, twice a day after discharge from the hospital to complete 10-14 days of therapy.

Comment: This regimen provides optimal coverage for *N. gonorrhoeae*, including PPNG, and *C. trachomatis*. It may not provide optimal treatment for anaerobes.

- Regimen B:
  Clindamycin: 600 mg, IV, 4 times a day
  plus
  Gentamicin or *tobramycin:* 2.0 mg/kg, IV, followed by 1.5 mg/kg, IV, 3 times a day in patients with normal renal function.

Continue drugs IV for at least four days and at least 48 hours after the patient improves. Then continue clindamycin 450 mg by mouth 4 times daily to complete 10-14 days total therapy.

Comment: This regimen provides optimal activity against anaerobes and facultative gram-negative rods, but may not provide optimal activity against *C. trachomatis* and *N. gonorrhoeae*.

- Regimen C:
  Doxycycline: 100 mg, IV twice a day
  plus
  Metronirdazole 1.0 gm, IV twice a day

Continue drugs I.V. for at least 4 days and at least 48 hours after patient improves. Then continue both drugs at same dosage orally to complete 10-14 days of therapy.

AMBULATORY TREATMENT

Cefoxitin: 2.0 g, IM, or *amoxicillin:* 3.0 g, by mouth, or *ampicillin:* 3.5 g, by mouth, or *aqueous procaine penicillin G:* 4.8 million units, IM, at 2 sites; each along with *probenecid* 1.0 g, by mouth.

plus

Doxycycline: 100 mg, by mouth, twice a day for 10-14 days.
Tetracycline HCL 500 mg, by mouth, 4 times a day can also be used, but is less active against certain anaerobes.

Comment: Cefoxitin or an equivalently effective cephalosporin plus doxycycline (or tetracycline) provides activity against *N. gonorrhoea*, including PPNG, and *C. trachomatis*.

Note: The intrauterine device is a risk factor for the development of PID. Although the exact effect of removing an IUD on the response of acute salpingitis to antimicrobial therapy and on the risk of recurrent salpingitis is unknown, removal of the IUD is recommended soon after antimicrobial therapy has been initiated. When an IUD is removed, contraceptive counseling is necessary.

SCREENING GUIDELINES FOR N. GONORRHOEA

1. High risk prenatals
2. Women who are having an intrauterine device inserted
3. Women attending for birth control counselling
4. Women having a therapeutic abortion
5. Women with more than one sex partner (at discretion of clinician)
6. Women whose partner is not monogamous (at discretion of clinician)

GENITAL CHLAMYDIA

ETIOLOGY: *Chlamydia trachomatis* — an obligate intracellular bacterium. At present this is the most common single cause of urethritis and cervicitis in North America.

CLINICAL:

Male
- 10-15% asymptomatic
- urethritis
- urethral discharge
- dysuria

Complications
- epididymitis

Female
- 15% asymptomatic
- cervicitis
- vaginal discharge
- dysuria

Complications
- salpingitis
- pelvic inflammatory disease (PID)
- ectopic pregnancy
- infertility

Persons with asymptomatic infection unknowingly act as a reservoir for *C. trachomatis* and may continually transmit the organism to unsuspecting partners.

INCUBATION PERIOD: Five to 14 days or longer.

COMMUNICABILITY: Unknown.

DIAGNOSIS:

Male:
Any one of:
1. Positive antigen detection (chlamydiazyme) test on urethral cells
   or
2. Urethral discharge in a male with history of sexual contact with a laboratory confirmed case in the preceding **five** to **fourteen** days.

Female:
Any one of:
1. Positive antigen detection test (chlamydiazyme) on cervical cells
   or
2. Cervical discharge in a female with history of sexual contact with a laboratory confirmed case in the preceding **five** to **fourteen** days.

Children: *C. trachomatis* identified by antigen detection, of urethral, vaginal or rectal specimen. (Only Microtrak recommended — see Laboratory Testing).

MANAGEMENT OF CASES:

1. Immediate antimicrobial therapy.
2. Screening test for syphilis to rule out concomitant infection.
3. Screening test for *N. gonorrhoeae* to rule out concomitant infection.
4. Interview within five working days if possible. Repeaters (persons who have had more than one episode of STD documented during the preceding 12 months) women with PID and other high risk individuals should be interviewed within one working day whenever possible.
5. Test of cure four weeks after completion of therapy for prenatals, repeaters, women with PID, and high risk individuals.

EVALUATION OF SEX PARTNERS:

Cases should be interviewed for all sex contacts for one month prior to the first appearance of symptoms or three months prior to the date of positive test results if asymptomatic and up to the date of interview.

MANAGEMENT OF CONTACTS:

All sex contacts should be evaluated (see General Diagnostic Methods), have appropriate sites tested for *C. trachomatis* and receive epidemiologic treatment after the appropriate tests are done. Treatment is as for cases.

All cases should refrain from sexual activity until they and their contacts have completed a course of therapy.

TREATMENT:

Infections caused by *C. trachomatis* are the most prevalent sexually transmitted diseases today. The importance of serious complications related to chlamydial infections has been established.

I. Uncomplicated Urethral, Endocervical or Rectal Infection in Adults

RECOMMENDED TREATMENT REGIMENS

Tetracycline hydrochloride (HCL): 500 mg, by mouth, four times a day for at least seven days

or

Doxycycline: 100 mg, by mouth, twice a day for at least seven days

ALTERNATIVE REGIMENS

(For patients in whom tetracyclines are contraindicated or not tolerated)

Erythromycin: 500 mg, by mouth, four times a day for at least seven days or erythromycin ethylsuccinate: 800 mg by mouth, four times a day for seven days.

Sulfonamides are also active against *C. trachomatis*, but have not been extensively studied.

II. Chlamydial Urogenital Infections During Pregnancy

Treatment should be given to pregnant women who have laboratory-proven *C. trachomatis* infections.

THE SUGGESTED TREATMENT IS:

Erythromycin 500 mg, by mouth, four times a day on an empty stomach for at least seven days.

For women who cannot tolerate this regimen, a decreased dose of 250 mg, by mouth, four times a day should be used for at least fourteen days.

Note: Lactating Women

The optimal dose and duration of antibiotic therapy for lactating women have not been established. There are currently no completely acceptable alternative regimens for women who are allergic to erythromycin or cannot tolerate erythromycin. In case of proven treatment failure, the women should be treated again with erythromycin in either of the dosage schedules outlined above.

Testing and treatment of the male partner(s) with tetracycline at the same time is an important part of the therapeutic regimen.

III. Children

Children who weigh 100 lbs (45 kg) or more should receive adult regimens. Children who weigh less than 100 lbs. should be treated as follows:

Erythromycin 50 mg/kg/day by mouth (not to exceed 2 g/day) given in four divided oral doses for fourteen days. If erythromycin cannot be tolerated: *Sulfisoxazole* 150 mg/kg/day given in 4 daily oral doses for 2-3 weeks (not to exceed 2 gm/day).

IV. Newborns

Infants born to mothers with chlamydial infection at time of delivery should have their eyes and nasopharnyx tested for chlamydia. Microtrak is required for the nasapharnygeal test. The newborn should be treated with oral *erythromycin* syrup 50 mg/kg/day in four divided doses for two weeks. Any infant that is test positive at time of delivery should be retested at four to six weeks post treatment.

V. Established Chlamydial Conjunctivitis of the Newborn

For all cases of ophthalmia neonatorum, appropriate tests should be done to rule out *Neisseria gonorrhoeae* as the cause.

The diagnosis of chlamydial conjunctivitis can be established by antigen detection test or Giemsa-stained conjunctival scrapings.

Treatment consists of oral *erythromycin* syrup 50 mg/kg/day in 4 divided doses for at least 2 weeks. There is no indication that topical therapy provides additional benefit. If inclusion conjunctivitis recurs after therapy, erythromycin treatment should be reinstituted for an additional 1-2 weeks.

VI. Treatment for Chlamydial Pneumonia of Infancy

For established cases of lower respiratory disease due to *Chlamydia trachomatis*, the recommended therapy is:

Oral *erythromycin* syrup 50 mg/kg/day in 4 divided doses for 14 days. The optimal duration for therapy has not been established.

Note: Chlamydial conjunctivitis of the newborn and chlamydial pneumonia in the infant is a marker for a genital chlamydial infection in the mother and the mother should be tested and treated.

SCREENING GUIDELINES

Screening is recommended for asymptomatic women at **high** risk for STD and for women prior to insertion of an intrauterine device. High risk patients include those with multiple sex partners, a recent history of or a contact with a sexually transmitted disease, or females presenting for therapeutic abortion. Antigen detection tests are **not** indicated for screening of low risk, asymptomatic women (e.g. as part of an annual examination or a prenatal examination).

CHILDREN WITH SEXUALLY TRANSMITTED DISEASES

SYPHILIS, GONORRHEA AND CHLAMYDIA

The approach to children under the age of 12 years with these STD is different than that for older adolescents and adults. It is recommended that all household contacts and any persons named by a parent (or guardian) or the child who had unsupervised access to the child for 30-100 days (depending on disease) prior to the diagnosis in the child, be tested. This includes all siblings who live in the home, the parents and the relatives who have been living or staying in the house. Also included may be babysitters or relatives or friends where the child may have been staying. It is recommended that these contacts have trisite testing (cervical/urethral, rectal and pharyngeal) and VDRLs done within 5 days. Epidemiologic treatment is only indicated for sex contacts named by the case.

These STD are rarely, if ever, transmitted by non-sexual contact, and since infection in children under 12 must be assumed to be the result of sexual abuse, child protection agencies are also involved in ensuring a safe environment for these children. It is important that the appropriate child protection agency (this varies from jurisdiction to jurisdiction) be notified of any case of gonorrhea, syphilis or chlamydia in a child.

From a communicable disease control point of view it is important to remember that contacts are traced so that they can be appropriately managed and the spread of infection interrupted. Identification of positive contacts can never be interpreted as identification of the perpetrator of the abuse. For this reason, information on contacts of children is treated with the same confidentiality as is information on contacts of adults. However, it should also be noted that a shared goal for both the health department and the child protection agencies is that the best interests of the child be served. To achieve this goal, continued co-operation of both agencies is essential.

HUMAN IMMUNODEFICIENCY VIRUS INFECTIONS AND ACQUIRED IMMUNODEFICIENCY SYNDROME

ETIOLOGY: Human Immunodeficiency Virus (HIV) a human retrovirus.

CLINICAL:

Infection with HIV can produce a very varied clinical picture, ranging from an acute seroconversion illness to AIDS many years later. Infection may be asymptomatic or symptomatic.

Acute infection following first exposure to the virus is usually asymptomatic and may occur up to about six weeks after the contact. When symptoms do occur they are often non-specific. A glandular fever-like illness has been described at the time of the acute seroconversion. The patient suffers from fever, malaise, lethargy, myalgia, arthralgia, lymphadenopathy, and sore throat. An acute reversible encephalopathy with disorientation, loss of memory and consciousness and personality change has also been described at seroconversion, as has acute meningitis, myelopathy, and neuropathy.

Probably not all of those who have seroconverted will progress to chronic infection. Those who do not probably go into a latent phase of infection. Nevertheless, it is prudent to assume that the individual is still infectious despite this latency. A positive antibody test to HIV indicates only that a person has been exposed to the virus and not that he or she has gained any natural immunity.

Chronic infection may also be asymptomatic. The clinical features described consist of cytopenias, minor opportunistic infections and skin conditions, lymphadenopathy, and the AIDS related complex (ARC). More recently, peripheral neuropathies, myelopathy, and encephalopathy have been seen in patients before they have developed AIDS.

Persistent Generalized Lymphadenopathy

The lymphadenopathy seen in chronic infection has been termed the persistent generalized lymphadenopathy syndrome (PGL). The definition of this syndrome is:

Enlarged nodes at least 1 cm in diameter in two or more (non-contiguous) extrainguinal sites that persist for at least three months in the absence of any current illness or medication known to cause enlarged nodes.

The nodes are symetrically affected, and those most often enlarged are in the posterior and anterior cervical chains and axillary and submandibular regions. Other less common sites are submeatal, postauricular, epitrochlear, and retroperitoneal. About a third of patients also have associated splenomegaly.

Several series of patients with persistent generalized lymphadenopathy have been studied prospectively for a number of years. The proportion with the syndrome who progress to AIDS varies from 10 to 30%, but the proportion increases the longer the patients are followed up.

AIDS RELATED COMPLEX

Patients who have some of the constitutional symptoms and signs of AIDS without the opportunistic infections or tumours found in the end stage disease are described as having the AIDS related complex (ARC). The term covers a wide range of disease. The concept is of less use now that an antibody test has been developed but can still be of use to the clinician in identifying particularly ill patients, some of whom will progress to AIDS.

The AIDS related complex is diagnosed in a person who presents with any two or more signs/symptoms which have been present for three months or longer and any two or more abnormal laboratory values:

Symptoms/signs:
Fever: $\geq 38°$ C intermittent/continuous
Weight loss: >10%
Lymph nodes: persistent generalized lymphadenopathy
Diarrhea: intermittent/continuous
Fatigue that reduces physical activity
Night sweats

Laboratory Abnormalities
Lymphopenia, leukopenia
Thrombocytopenia
Anaemia
Reduced ratio of T4:T8 (>2 SD)
Reduced T helper cells (>2 SD)
Reduced blastogenesis
Raised globulins
Cutaneous anergy

OPPORTUNISTIC INFECTIONS AND TUMORS (AIDS)

The two main clinical manifestations of AIDS are tumors and a series of opportunistic infections. Kaposi's sarcoma is the commonest original tumour described but non-Hodgkin's lymphoma (usually extranodal) and squamous carcinomas of the mouth and anorectum have also been described.

The many opportunistic infections associated with AIDS affect virtually any system of the body. *Pneumocystic carinii* pneumonia is the commonest opportunistic infection and presenting feature in patients with AIDS. Other organisms can also cause pneumonia in patients with AIDS: bacteria (*Haemophilus influenzae*, *Streptococcus pneumoniae*, *Branhamella catarrhalis*, group B streptococcus, and mycobacteria) viruses (cytomegalovirus and herpes simplex) and fungi (cryptococcus). Infections also occur affecting the central nervous system. The organisms are protozoal (toxoplasma), viral (cytomegalovirus and herpes simplex), bacterial (mycobacteria), and fungal (aspergillus, candida, cryptococcus). Finally, the gastrointestinal tract can be infected with protozoa (cryptosporidium, *Isospora belli*, and microsporidia), viruses (cytomegalovirus and herpes simplex), fungi (particularly candida), and bacteria (*Mycobacterium avium intracellulare*, *Mycobacterium tuberculosis*, and salmonella).

Progression

Not everyone infected with HIV develops AIDS. Cohort studies give some idea of the natural history. Different rates of progression might be accounted for by more virulent cofactors for progression in some of the groups and the fact that some of those studied had been infected for longer than the period studied. Nevertheless, there is no doubt that the longer the natural history is observed the greater the proportion who will progress from seroconversion to AIDS.

The clinical spectrum is enlarging all the time. The originally described manifestations of Kaposi's sarcoma and *Pneumocystis carinii* pneumonia may have represented the presentation of a short incubation illness, and possibly those who develop AIDS after a longer period may have different clinical presentations. This already seems to be occurring, with the appearance of new clinical phenomena such as other tumours and neurological disease. Other conditions increasingly recognized as part of end stage disease are lymphoid interstitial pneumonitis, granulomatous hepatitis, and an enteropathy.

The median survival of patients after diagnosis of AIDS varies with the presenting manifestation. In America survival is about nine months for patients with *Pneumocystis carinii* pneumonia and 31 months for those suffering from Kaposi's sarcoma.

Classification system for human immunodeficiency virus:

Because infection with AIDS can manifest itself in many ways, from asymptomatic infection to AIDS, the Centers for Disease Control have attempted to classify the range of HIV infection into four groups.

Group I	Acute infection
Group II	Asymptomatic infection
Group III	Persistent generalized lymphadenopathy
Group IV	Other diseases
Subgroup A	Constitutional disease
Subgroup B	Neurological disease
Subgroup C	Secondary infectious disease
Category C-1	Specified secondary infectious diseases listed in the CDC surveillance definition for AIDS
Category C-2	Other specified secondary infectious diseases
Subgroup D	Secondary cancers
Subgroup E	Other conditions

Incubation Period: — Unknown. Epidemiologic evidence suggests that duration from exposure to onset of symptoms has a minimum range from about 6 months to 5 years with a mean of 2 years in transfusion-associated cases.

Communicability — Unknown. Presumed to extend from asymptomatic period through appearance of opportunistic disease.

TRANSMISSION

How the Virus is Spread

- HIV has been shown to be spread from an infected person to an uninfected person by:
  - sexual contact (penis/vagina, penis/rectum, mouth/rectum, mouth/genital)
  - sharing needles or "works" used in injecting drugs,

- transfusion or injection of infectious blood or blood fractions.

It can also be spread from an infected woman to her fetus or newly born baby.

An individual can be infected without having symptoms of AIDS or appearing ill. Infected individuals without symptoms can transmit the infection to others. Once infected, a person is presumed infected for life, but actual symptoms may not develop for many years.

A single exposure to the virus may result in infection.

How the Virus is NOT Spread

- There is no evidence that the virus is spread through casual social contact (shaking hands, social kissing, coughing, sneezing, sharing swimming pools, bed linens, eating utensils, office equipment, being next to or served by an infected person). There is no reason to avoid an infected person in ordinary social contact.
- It is not spread by the process of giving blood; new transfusion equipment is used for each donor.
- It is not spread by sexual intercourse between individuals who have maintained a sexual relationship exclusively with each other assuming that they have not been infected through contaminated blood, blood factors, IV drug abuse, or a previous sexual partner.

Risk Groups

1. Homosexual/bisexual men.
2. Intravenous drug abusers.
3. Recipients of multiple blood or blood product transfusions prior to 1986.
4. Children born to mothers infected with HIV.
5. Persons with multiple sex partners.
6. Sex contacts of risk group members.

Risk Activities

1. Multiple sex partners, especially anonymous partners.
2. Anal intercourse.
3. Intravenous drug abuse.

DIAGNOSIS

At the present time, blood can routinely be tested only for antibodies which form in response to the virus. The blood test is available only at the request of a physician and should only be done after appropriate counselling has taken place.

Positive Antibody Test

If antibodies to HIV are found in the blood, it means the person has been infected with this virus at some time. **This is NOT a test for AIDS**. A positive test result does NOT indicate whether or not the person will get AIDS at some time in the future. It does **NOT** mean the person is immune to the virus. It **DOES** indicate that the person has been exposed to the virus, is assumed to have the virus in his/her body and could pass it on to others.

Negative Antibody Test

Usually it means that the person has not been infected with HIV.

TREATMENT

At this time there is no treatment which can repair the breakdown of the body's immune system. Treatments are available for many of the illnesses which develop because of the weakened immune system. However, AIDS is always fatal. Most patients die within three years of diagnosis.

PREVENTION

No vaccine is available in the foreseeable future. The only strategy to combat the spread of infection is to prevent the transmission of the virus from one person to another.

PUBLIC EDUCATION

GENERAL PUBLIC

Education of the general public is an essential component of the program to control AIDS and HIV infections. Knowledge of the routes of transmission and risk factors for infection should alleviate much of the unfounded concern which exists in the community. At the same time, correct information should motivate all individuals to realistically reduce their own risk of acquiring (or transmitting) this infection.

People infected with the virus may seem completely healthy and may not even know they have it. Although most persons in North America who are known to be infected are in high risk groups, **anyone** can become infected. Therefore, it is prudent for everyone to take precautions to protect themselves from becoming infected. The following information and advice is appropriate for all members of the general public:

- Infection through sexual contact can be avoided by practicing sexual abstinence or, for sexually active persons, by establishing a mutually exclusive relationship with an uninfected partner.
- Do not have sex with many different people. The more partners you have, the greater the chance of having sex with someone who is infected.
- Use condoms if there is any possibility your partner has been exposed to or is infected with HIV. A history of intravenous drug-use or of many sexual partners increases the chance that a person may have been infected.
- Do not share needles and syringes with anyone.
- Do not have anal intercourse. If you do have anal intercourse, use a condom.

SCHOOLS

School boards and public health units are encouraged to develop education programs to inform children, parents, and teachers about AIDS and HIV infections. Education about risk factors and risk reduction methods should be factual and non-judgmental.

SCHOOL AND COLLEGE AGED POPULATIONS

- Saying no to sex and drugs can virtually eliminate the risk of AIDS.
- Sexual transmission of HIV is not a threat to those uninfected individuals who practice responsible sexual behavior, based on fidelity, commitment and maturity, placing human sexuality within the context of an exclusive relationship.

RISK GROUPS/RISK ACTIVITIES

Persons in all the risk groups and persons who engage in risk activities should be informed about AIDS and HIV infections so they can minimize their risk of acquiring the infection and also minimize their risk of transmitting it.

If a person knows he/she is infected, precautions must be taken to prevent passing the virus on to another person. The following advice is particularly appropriate for persons who are in known risk groups or who engage in risk activities:

- Use condoms during sexual intercourse. The proper use of condoms may prevent infection with the virus carried in semen and vaginal fluid.
- Do not have anal intercourse. It can cause sores or cuts in the rectum and the virus may get into the bloodstream through these breaks. If you do have anal intercourse, use a condom.
- Do not have oral sex if you have open sores or cuts in the mouth.
- Do not allow semen, blood, urine or feces to enter the body of a sexual partner.
- Infected women should use a safe method of contraception to avoid pregnancy.
- Never share needles and syringes with anyone.
- Do not donate blood, organs or sperm.

CHANCROID

ETIOLOGY: *Haemophilus ducreyi*, the Ducrey bacillus.

CLINICAL: Single or multiple painful necrotizing ulcers, usually in the genital area, often associated with painful and/or suppurative regional lymph nodes.

Since many STDs cause genital ulcers, it is important to differentiate among them. All genital ulcers should be examined with darkfield microscopy.

INCUBATION PERIOD: From 3-5 days, up to 14 days.

COMMUNICABILITY: Until original lesion and/or discharging lymph nodes healed; usually several weeks.

DIAGNOSIS:

Identification of the organism in the exudate from the edges of the lesion, or from pus from buboes. Culture of this organism requires inoculation into special media, Thayer Martin plates and intrinsically supplemented chocolate agar. Laboratory staff should be consulted to optimize the culture of this organism.

TREATMENT:

Considerable variation occurs in antibiotic susceptibility patterns for *H. ducreyi*. Many strains are becoming resistant to sulfonamides. Although antibiotic resistance should be determined, one of the following regimens may be selected. Therapy should be continued for ten days.

1. *Sulfamethoxazole*, 800 mg/*trimethoprim*, 160 mg, by mouth, BID, for ten days. (A single dose of a sulfonamide 3200 mg/trimethoprim, 640 mg combination has also been shown to be as effective as ten days of therapy in the healing of ulcers and resolution of buboes.)

OR

2. *Erythromycin*, 500 mg, PO, QID; for ten days.

FOLLOW-UP:

Follow-up schedules are individualized, but should be at no more than one week intervals until the lesion(s) are clearly resolving. Follow-up should continue until complete resolution has occurred. Patients should understand the importance of abstaining from sex while clinical disease is present.

EVALUATION OF SEX PARTNERS:

Current sex partners should receive a routine STD evaluation and be tested for and treated with a regimen adequate for chancroid.

NOTE: Chancroid is not endemic in Manitoba. Usually individuals have become infected outside of Canada.

OTHER SEXUALLY TRANSMISSIBLE DISEASES

Condylomata acuminata

Cytomegalovirus

Enteric infections

Granuloma inguinale

Hepatitis B

Herpes Genitalis

Lymphogranuloma venereum

Molluscum Contagiosum

Pediculosis

Scabies

Urethritis and mucopurulent cervicitis

CONDYLOMATA ACUMINATA (GENITAL WARTS)

DIAGNOSIS:

The human papilloma virus (HPV) which causes genital warts cannot be cultivated **in vitro**. A presumptive diagnosis is made on the basis of the typical clinical presentation. The diagnosis of condylomata lata should be excluded by obtaining a serologic test for syphilis.

Atypical or persistent warts should be biopsied since anogenital warts have been linked to the development of cancer.

VIRUS TYPING:

Females with genital warts should have a PAP smear. Specific HPV types are implicated in cervical cancer. Wart biopsies and/or cells from cervical scrapings may be submitted to Cadham Provincial Laboratory for virus typing. Specimens should be submitted in a 50 ml centrifuge tube containing 5 ml of phosphate-buffered saline. Contact Cadham Provincial Laboratory for information regarding containers and specimen transport.

TREATMENT:

Spontaneous regression commonly occurs in the absence of specific treatment. However, treatment is available and usually warranted. Procedures directed at individual lesions include:

1. *Podophyllin* 20-25% in tincture of benzoin applied topically by a clinician, which the patient washes off four to six hours later (contraindicated in pregnancy); or
2. Cryotherapy with liquid nitrogen; or
3. Electrodessication.

FOLLOW-UP:

Patients should return at one to two week intervals for retreatment until lesions have disappeared and the skin has healed. Patients should abstain from sexual contact or use condoms to prevent disease transmission until therapy is complete.

EVALUATION OF SEX PARTNERS:

Current sex partner(s) should have a routine STD evaluation. Any genital warts which are identified should be treated.

CYTOMEGALOVIRUS (CMV) INFECTION

ETIOLOGY: Cytomegalovirus — a member of the herpes virus family.

CLINICAL: Manifestations of **acquired** CMV infection may include pneumonia, mononucleosis syndrome, hemolytic anemia, splenomegaly, and petechial rash, but frequently no clinical symptoms are observed. The most frequent manifestations of **congenital** illness are hepatosplenomegaly, jaundice, purpura, microcephaly, cerebral calcifications, and choreoretinitis; deafness is one of the major problems associated with congenital CMV infection. Less specific findings in newborns are failure to thrive and recurrent respiratory infections

DIAGNOSIS:

Isolation of the virus from urine, saliva, cervical secretions, breast milk or tissue in cell culture; by demonstration of "cytomegalic" cells in sediments of body fluids or in organs; by greater than or equal to a 4-fold rise in CMV titre in paired sera, and by demonstration of CMV — specific IgM.

TREATMENT:

Treatment is supportive, nonspecific, and symptomatic. Sexual abstinence or the use of condoms is indicated when clinical infection is present.

FOLLOW-UP:

Follow-up schedules are individualized according to clinical progress. The acquired illness is usually self-limited among immunocompetent individuals.

EVALUATION OF SEX PARTNERS:

Partners should be offered an STD evaluation.

Presently there is no specific therapy or vaccine to offer sex partners of patients with CMV infection.

ENTERIC INFECTIONS

A comprehensive review of the diagnosis and treatment of the sexually transmitted enteric infections is not possible here. However, awareness of the sexual transmission of these infections is crucial to the understanding of their epidemiology. Fecal-oral transmission is still thought to be the most common route of spread but there are obvious opportunities for sexual transmission to occur in some situations.

The sexually transmissible enteric pathogens include protozoa such as *Entamoeba histolytica* (amebiasis) and *Giardia lamblia* (giardiasis); viruses such as hepatitis A and B virus; and bacteria such as *shigella* sp, *Campylobacter jejuni*, and *salmonella* sp.

Because the field of enteric infections is large and complex, referring to the current medical literature is most important. Communicable Disease Control section can provide information on enteric infections.

DIAGNOSIS:

Definitive diagnosis depends upon specific identification of organisms. In some illnesses this is easy to accomplish. For instance, shigellosis and salmonellosis can be diagnosed by culturing a fresh stool specimen. Protozoa and helminths can be diagnosed by direct identification of ova, cysts, or trophozoites on microscopic examination, but a series of such examinations may be necessary. For some infections, a definitive diagnosis may be difficult to establish. For instance, *campylobacter* sp requires a specific culture medium and temperature. Hepatitis A is diagnosed on the basis of clinical findings and serology.

TREATMENT:

Most enteric infections do not require specific therapy. Fluid and electrolyte replacement for patients with diarrhea is, of course, important. Otherwise, treatment is dictated by the clinical status of the patient and microbiologic testing. For some infections, like hepatitis A, there is no specific therapy. For others, such as shigellosis, choice of therapy, when indicated, is dictated by sensitivity testing. Routes of administration and dosage are also determined by the clinical status of the patient.

FOLLOW-UP:

1. All patients with enteric infection should be educated about the modes of transmission of these pathogens and encouraged to modify or at least temporarily curtail behaviours which place them at risk for reinfection. As with all STDs, non-judgmental attitudes are vital to therapeutic success.
2. Following a course of therapy, several stool specimens should be examined for pathogens before cure can be reasonably well established. It may be difficult to distinguish reinfection from treatment failures. Additional therapy, educational efforts to modify sexual practices, and follow-up are indicated.

EVALUATION OF SEX PARTNERS:

Sex partners should be screened for STDs and any enteric pathogens to which they are exposed.

GRANULOMA INGUINALE (DONOVANOSIS)

ETIOLOGY: *Calymmatobacterium granulomatis*

CLINICAL: A nodule, vesicle, or papule becomes a slowly spreading, ulcerative process which extends peripherally with characteristic rolled edges. The process may result in extensive destruction.

DIAGNOSIS:

1. Definitive diagnosis is made when the causative organism, *Calymmatobacterium granulomatis*, is demonstrated by (a) direct smear or (b) culture.
2. The typical clinical presentation of single or multiple subcutaneous nodules at the site of inoculation which erode to form painless, beefy, granulomatous ulcers is sufficiently characteristic to establish a presumptive diagnosis among patients epidemiologically linked to definitive cases.

TREATMENT:

Tetracycline, 0.5 g, by mouth, QID for at least 21 days and preferably until all lesions have healed.

Erythromycin and sulfamethoxazole/trimethoprim regimens have also been reported to be effective. Penicillins are not effective.

FOLLOW-UP:

Follow-up schedules are individualized, but should be at no longer than weekly intervals until the lesion(s) are clearly resolving. Follow-up should continue until complete resolution has occurred. Patients should understand the importance of abstaining from sexual activity while any lesion is present.

EVALUATION OF SEX PARTNERS:

Current sex partners should receive a routine STD evaluation. A particular effort should be made to identify initial subcutaneous nodules, because early treatment decreases the likelihood of serious sequelae. All steady sex partners of cases should be treated prophylactically.

HEPATITIS B

ETIOLOGY: Hepatitis B virus — a 42 nm double-stranded DNA virus.

CLINICAL: Infection may be asymptomatic or associated with anorexia, nausea, vomiting, arthralgia, rash often progressing to jaundice. Fatality rate in hospitalized patients is about 1%. Prolonged hepatitis B antigenemia may ensue.

NOTE: There is evidence to suggest that hepatitis B, hepatitis A, and non-A non-B hepatitis all are sexually transmissible.

DIAGNOSIS:

The definitive diagnosis of hepatitis B requires that hepatitis B surface antigen (HBsAg) be detected in the serum of a patient in the acute phase of illness and that other types of acute hepatitis be excluded.

The diagnosis is presumptive in patients with the classic clinical syndrome and a positive HBsAg test.

The diagnosis is suggested when a patient with the classic clinical syndrome has an epidemiologic link with another definitive, presumptive, or suggestive case within the incubation period (45-180 days).

TREATMENT:

Treatment is non-specific, symptomatic, and supportive. It generally includes rest and adequate diet. Severe cases require hospitalization and, possibly, intravenous therapy to assure fluid and electrolyte balance. Fulminant progressive hepatitis B, although rare, may require exchange transfusions or other heroic measures.

FOLLOW-UP:

1. All cases should have the HBsAg test repeated 3 months and 6 months after diagnosis. Those who are positive at 6 months probably are chronic carriers and should be retested at 1 year. Those positive at 1 year are definitely chronic carriers and should be evaluated for infectivity with hepatitis B e antigen tests.
2. Infants born to HBsAg positive mothers should receive hepatitis prophylaxis (see communicable disease guidelines).

EVALUATION OF SEX PARTNERS:

1. Sex partners are at risk for developing hepatitis B, and sexual contact is contraindicated during the infectious period which may be prolonged.
2. Susceptible individuals at high-risk for acquiring hepatitis B may be protected from infection by vaccination (see communicable disease guidelines).

HERPES GENITALIS

ETIOLOGY: Herpes simplex virus (HSV); type II is a more frequent cause of genital herpes than type I.

CLINICAL: An incubation period of less than seven days is followed by a primary attack with multiple painful vesicles of the genital or perianal area. These ulcerate and crust and heal by three weeks. Viral shedding persists for only two weeks. Recurrences occur without the necessity for re-exposure and are less severe and of shorter duration. They may be precipitated by stress, intercourse, menstruation and other factors.

DIAGNOSIS:

A definitive diagnosis is made when a herpes simplex virus (HSV) is isolated in cell culture from scrapings taken from the base of a genital lesion. Lesions are commonly found on the cervix, vaginal walls, labia, urethra, penis, scrotum, rectum, thighs and buttocks.

Herpes genitalis is suspected whenever darkfield negative, typical herpetic genital lesions are present or a pattern of recurrence has developed.

TREATMENT:

1. First Clinical Episode: Oral acyclovir is best — five tablets per day for three-seven days. If the infection is severe (systemic) the patient may have to be hospitalized for IV acyclovir.
2. Recurring Disease: There is no effective treatment at present; oral acyclovir has shown promise in clinical trials.

Supportive therapy is directed at relieving pain, and keeping lesions clean and dry. Psychologic support is extremely important for these persons. They should be advised to abstain from all sexual activity until the lesions are completely healed. The use of condoms should be promoted.

The management of obstetrical and perinatal herpes simplex viral infections is beyond the scope of this manual but it should be recognized that infants born to mothers with active herpes at term are at considerable risk. Mothers with febrile illness near term should be examined carefully and cultures for HSV should be obtained from symptomatic sites. The screening of HSV from the cervix weekly throughout pregnancy has not been found to correlate with results at term for women with a previous history of HSV infection.

FOLLOW-UP:

Follow-up schedules are individualized according to clinical progress. Complete resolution of lesions without scarring is expected. Patients should understand that clinical recurrences are common and that abstaining from sexual intercourse during episodes of clinical infection is crucial. Women with genital herpes infection should be advised to have a yearly PAP test.

EVALUATION OF SEX PARTNERS:

1. Partners should be offered an STD evaluation.
2. They should only be tested specifically for HSV if lesions are present. Screening is not applicable in this illness.
3. Presently, there is no specific therapy or vaccine to offer sex partners of patients with genital herpes.

LYMPHOGRANULOMA VENEREUM (LGV)

ETIOLOGY: *Chlamydia trachomatis* of immunotypes L-1, L-2, and L-3.

CLINICAL: Small painless evanescent erosion, papule or nodule on the genital area. Regional lymph nodes suppurate and the inflammatory process spreads to adjacent tissues. In males, inguinal buboes may become adherent to skin and result in sinus formation. In the female, pelvic nodes may be involved and result in proctitis, stricture of the rectum and fistulas. Elephantiasis of the genitals may occur.

DIAGNOSIS:

1. Definitive diagnosis is based on the isolation of the causative organism, *Chlamydia trachomatis*, serotype L. The agent must be aspirated from an infected lymph node and grown in a cell or tissue culture.
2. The LGV complement fixation test (LGV-CFT) is sensitive and specific, and can be titred. A 4-fold rise in titre in a patient with the typical clinical syndrome constitutes a presumptive diagnosis.
3. The diagnosis is suggested by the typical clinical presentation and a single LGV-CFT with titre greater than 1:32.

TREATMENT:

1. Antimicrobials should be taken for at least fourteen days or until the adenopathy and lesions resolve.
   a. *Tetracycline*, 0.5 g, by mouth, QID for at least 2 weeks; or
   b. *Sulfisoxazole*, 4 g initially, then 0.5 g, by mouth, QID (other sulfonamides in analogous dosages may be used).
2. Fluctuant lymph nodes should be aspirated as needed, but not surgically removed.
3. Fistulae require surgical correction after the infection is cured.

FOLLOW-UP:

1. Clinical response is the best guage of therapy. Patients should be followed at one to two week intervals until all lesions have resolved. For some patients, this has required nine weeks of antibiotic therapy.
2. Since exacerbations of LGV are common, patients should be re-examined and have an LGV-CFT every three months for a year after therapy ends. Retreatment may be indicated by a rising titre.

EVALUATION OF SEX PARTNERS:

1. Sex partners of patients should be evaluated and treated as for LGV.
2. There are no proven methods of prevention of LGV. However, using condoms may prevent genital to genital or genital to rectal transmission.

MOLLUSCUM CONTAGIOSUM

ETIOLOGY: A human poxvirus.

CLINICAL: Pearly pink to white papules with a central pore. They are usually multiple and occur most frequently in the genital area in adults, and anywhere in children. The eruption usually clears spontaneously in six months.

DIAGNOSIS:

The poxvirus which causes molluscum contagiosum cannot be cultivated **in vitro**.

Most often, the disease is diagnosed presumptively on the basis of the typical clinical presentation.

A definitive diagnosis is made if virus-filled vacuoles, the molluscum inclusion bodies, are identified on microscopic examination of specially stained lesion material, or if poxviruses are seen by electron microscopic examination of material forwarded to the laboratory on a glass slide.

TREATMENT:

Lesions may resolve spontaneously without scarring. However, surgical or medical removal may be warranted. Procedures directed at individual lesions include:

1. Curettage after local cryoanesthesia; or
2. Application of cytotoxic substances (podophyllin or silver nitrate); or
3. Cryotherapy with liquid nitrogen.

FOLLOW-UP:

Patients should return at 1-2 week intervals until lesions have disappeared and the skin has healed.

EVALUATION OF SEX PARTNERS:

Current sex partner(s) should have a routine STD evaluation.

PEDICULOSIS (CRABS)

ETIOLOGY: *Phthirus pubis* — the crab louse.

CLINICAL: Severe itching and excoriation.

DIAGNOSIS:

1. Definitive diagnosis is made by finding lice or nits attached to genital hair.
2. Presumptive diagnosis is made when a patient with a history of recent exposure to pubic lice has pruritic erythematous macules, or papules on secondary excoriations in the genital region.
3. The diagnosis is suggested when the patient reports the finding of "crab" lice in the genital region. It is also suggested when the patient has been recently exposed to a definitive or presumptive case.

TREATMENT:

1. Several lotions, creams, or shampoos are effective. Application should be from mid-chest to mid-thigh.
   a. *Lindane*, 1% (lotion or cream), applied after warm shower or bath and left on for eight hours; or
   b. *Lindane*, 1% (shampoo), lathered on during a shower and left on for 4 minutes; or
   c. Pyrethrins with piperonyl butoxide which are left on for 10 mintues; or
   d. Tetrahydronaphthalene and copper oleate which is left on for 15 minutes.
2. These products must be thoroughly removed with soap and water.
3. Following treatment, comb out nits.
4. Clothing and linen should be disinfested by washing them in hot water, by dry cleaning them, or by removing them from human exposure for two weeks.

FOLLOW-UP:

Patients should be examined in one week. Since ova may survive, a second treatment may be necessary. Sexual or close physical contact should be avoided until after treatment. Patients should return if the problem is not cured or recurs.

EVALUATION OF SEX PARTNERS:

All sex partners should receive a routine STD evaluation.
Recent sex partners should be treated as recommended for pediculosis.

SCABIES

ETIOLOGY: *Sarcoptes scabiei* — a mite.

CLINICAL: Tiny papules or vesicles or tiny linear burrows. (Common sites of infection include the wrists, webbing between the fingers, the axillae, the penis and the inner thighs.) Intense itching is present, especially at night. Excoriations and secondary infection may occur.

DIAGNOSIS:

1. Definitive diagnosis requires that the mite, its eggs, larvae, or feces be identified grossly or microscopically. Specimens are obtained by scraping papules or burrows.
2. Presumptive diagnosis is made when a patient with or without a history of recent exposure to scabies has clinical evidence of infestation.

TREATMENT:

1. Several lotions or creams are effective. The selected product is applied to the entire skin surface from the neck down.
   a. *Lindane*, 1% (lotion or cream), is washed off with warm soapy water after eight hours; or
   b. Crotamiton, USP, is applied after a routine bath and again 24 hours later. A cleansing bath should be taken at 48 hours after the last application.
2. Clothing and linen should be disinfested by washing them in hot water, dry cleaning them, or by removing them from human exposure for two weeks.

FOLLOW-UP:

Patients should be examined in one week. Since ova may survive, a second treatment may be necessary. Sexual or close physical contact should be avoided until after treatment. Patients should return if the problem is not cured or recurs.

EVALUATION OF SEX PARTNERS:

All sex partners should receive a routine STD evaluation. Recent sexual partners should be treated as recommended for scabies.

URETHRITIS & MUCOPURULENT CERVICITIS

Urethritis is defined as a urethral inflammation which may be manifested as:

(i) history of urethral discharge and/or dysuria,

or

(ii) urethral discharge on examination,

or

(iii) 5 leukocytes per oil immersion field on microscopic examination of a urethral smear.

Mucopurulent cervicitis is defined as a cervical inflammation which may be manifested as:

(i) cervical ectopy with edema,

or

(ii) mucopurulent cervical discharge,

or

(iii) cervical bleeding on insertion of a swab,

or

(iv) 30 leukocytes per oil immersion field on a microscopic examination of cervical secretions (taken after the pus has been removed).

Urethritis in the male and mucopurulent cervicitis in the female can be caused by a number of different pathogens, primarily chlamydia and gonorrhea. Although laboratory testing to define the etiologic agent is ideal, testing (e.g. antigen detection for chlamydia) may not always be readily available.

The following algorithm suggests an approach to the management of patients with urethritis/cervicitis.

Please note that contact tracing by Public Health nurses is initiated only for contacts of confirmed cases of gonorrhea and chlamydia and **not** for non-specific urethritis and cervicitis. The management of cases of gonorrhea and chlamydia and of their contacts is outlined in the sections on these specific diseases.

Patients with urethritis or muco purulent cervicitis should be advised to inform their own partners of their risk.

MALE

Urethritis

↓

History & Examination

↓

Urethral Smear For Gram Stain

Positive or not available	Negative with leukocytes 5*
↙	↘
1. Culture for Gonorrhea	1. Culture for Gonorrhea
+	+
2. Antigen detection, microtrak or chlamydiazyme for Chlamydia	2. Antigen detection, microtrak, or chlamydiazyme for Chlamydia
↓	↓
Treatment	Treatment
1. *Ampicillin* 3.5 gm. p.o. or *Aqueous Procaine Penicillin G* 4.8 million units IM	1. *Tetracycline* 500 mg. p.o. QID × 7 days
+	
2. *Probenecid* 1.0 gm. p.o.	
+	
3. *Tetracycline* 500 mg. p.o. QID × 7 days	

1. Test of Cure — disease specific — i.e. at 3-5 days after completion of therapy for gonorrhea and at 4 weeks after completion of therapy for chlamydia for high-risk cases, e.g. repeaters, PID.
2. Contact tracing if laboratory-confirmed gonorrhea and/or chlamydia to follow guidelines for specific disease.

* If five leukocytes are present per oil immersion field, it may be reasonable to attempt chlamydia detection, but in most cases results will be negative.

FEMALE

Mucopurulent Cervicitis/Pelvic Inflammatory Disease

↓

History & Examination

↓

Endocervical Smear For Gram Stain

1. Culture for Gonorrhea
2. Antigen detection, microtrak or Chlamydiazyme for Chlamydia

Treatment

1. *Ampicillin* 3.5 gm. p.o.
   or
   Aqueous Procaine Penicillin G. 4.8 million units I.M.
   +
2. *Probenecid* 1.0 gm. p.o.
   +
3. *Tetracycline* 500 mg. p.o. QID for 7-14 days*

1. Test of Cure — disease specific — i.e. at 3-5 days after completion of therapy for gonorrhea, and at 4 weeks after completion of therapy for chlamydia but is **recommended only for high-risk cases**, e.g. repeaters, PID.
2. Contact tracing if laboratory-confirmed gonorrhea and/or chlamydia to follow guidelines for specific diseases.

* Mucopurulent Cervicitis — 7 days
PID — 10-14 days

APPENDIX A

MANITOBA

Revised Regulation P210/R2

DIVISION II

being a Regulation under

Chapter P210

THE PUBLIC HEALTH ACT

Respecting Sexually Transmitted Disease

OFFICE CONSOLIDATION

NOTICE

All persons making use of this consolidation are reminded that it has no legislative sanction; that the amendments have been embodied only for convenience of reference; and that the original Regulation should be consulted for all purposes of interpreting and applying the law.

Printed by the Queen's Printer for the Province of Manitoba

MANITOBA

Revised Regulation P210/R2

DIVISION II

being a Regulation under

Chapter P210

THE PUBLIC HEALTH ACT

Respecting Sexually Transmitted Disease

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DIVISION II

SEXUALLY TRANSMITTED DISEASE

Definitions

29 In this Division

"director" means the Director of Communicable Disease Control or the designate of the director; ("directeur")

"physician" means a duly qualified medical practitioner; ("médecin")

"sexually transmitted disease" means a venereal disease specified in section 5 of Division I. ("maladie transmise sexuellement")

En. M.R. 139/87.

Diagnosis of gonorrhea

30 For the purposes of this division, a diagnosis of gonorrhea shall be made on the basis of

(a) a review of the medical history and a physical examination of the person; and

(b) either,

(i) the identification of Gram-negative intracellular diplococci from the urethra, or

(ii) the identification of *Neisseria gonorrhoeae* in a specimen taken from any anatomical site.

En. M.R. 139/87.

Diagnosis of syphilis

31 For the purpose of this division, a diagnosis of syphilis shall be made on the basis of

(a) a review of the medical history and a physical examination of the person;

(b) a serological test for syphilis carried out at a laboratory designated by the director; and

(c) where there is a chancre or other infectious lesion the laboratory test shall include the darkfield microscopical examination or another examination acceptable to the director for *Treponema pallidum*.

En. M.R. 139/87.

Diagnosis of chancroid

32 For the purposes of this division, a diagnosis of chancroid shall be made on the basis of

(a) a review of the medical history and a physical examination of the person; and

(b) the laboratory identification of *Haemophilus ducreyi* in a specimen taken from any anatomical site.

En. M.R. 139/87.

Diagnosis of chlamydia

33 For the purposes of this division, a diagnosis of chlamydia shall be made on the basis of

(a) a review of the medical history and a physical examination of the person; and

(b) the laboratory identification of *Chlamydia trachomatis* in a specimen taken from an appropriate anatomical site.

En. M.R. 139/87.

Diagnosis of AIDS

34 For the purposes of this division, a diagnosis of AIDS shall be made on the basis of

(a) a physical examination and the medical history of the person;

(b) a positive laboratory test for

(i) human immunodeficiency virus (HIV), or

(ii) the serum antibody to human immunodeficiency virus (HIV);

(c) the occurence of *Pneumocystis carinii* pneumonia, *Kaposi's* sarcoma or another opportunistic disease that is at least moderately indictive of cellular immunodeficiency in the absence of

(i) all known causes of cellular immunodeficiency, and

(ii) all other causes of reduced resistance reported to be associated with any such opportunistic disease; and

(d) any additional medical criteria which the director considers appropriate.

En. M.R. 139/87.

Gonorrhea considered infectious

35 For the purposes of this division, a person with gonorrhea is considered infectious until

(a) prescribed treatment has been completed; and

(b) either,

(i) at least one laboratory examination satisfactory to the director, taken after completion of treatment, fails to show *Neisseria gonorrhoeae*, or

(ii) the director is satisfied that the danger of communication of such infection to other persons no longer exists.

En. M.R. 139/87.

Syphilis considered infectious

36 For the purposes of this division, a person with syphilis is considered infectious until

(a) prescribed treatment has been completed; and

(b) either,

(i) all lesions of the skin or mucous membranes are completely healed, or

(ii) the director is satisfied that the danger of communication of such infection to other persons no longer exists.

En. M.R. 139/87.

Chancroid considered infectious

37 For the purposes of this division, a person with chancroid is considered infectious until

(a) prescribed treatment has been completed;

(b) all lesions of the skin or mucous membranes are completely healed; and

(c) either,

(i) at least one laboratory examination taken after completion of treatment and satisfactory to the director, fails to show *Haemophilus ducreyi*, or

(ii) the director is satisfied that the danger of communication of such infection to other persons no longer exists.

En. M.R. 139/87.

Chlamydia considered infectious

38 For the purposes of this division, a person with chlamydia is considered infectious until

(a) prescribed treatment has been completed; and

(b) either,

(i) at least one laboratory examination taken after completion of treatment and satisfactory to the director, fails to show *Chlamydia trachomatis*; or

(ii) the director is satisfied that the danger of communication of such infection to other persons no longer exists.

En. M.R. 139/87

AIDS considered infectious

39 For the purposes of this division, a person with acquired immune deficiency syndrome (AIDS) is considered infectious until the director is satisfied that the danger of communication of such infection to other persons no longer exists.

En. M.R. 139/87

Physician's duty to report disease

40(1) A physician who, while attending a person, forms the opinion that the person has or may have a sexually transmitted disease shall

(a) as soon as possible after forming the opinion, make a report to the director; and

(b) where that person has been in contact with another person in circumstances from which it reasonably can be expected that the infected person has transmitted the disease to another person, or has been infected by another person, report the contact to the director.

En. M.R. 139/87

40(2) The report shall be in Form I of the Schedule to this Division and shall include full information, including details of the methods of examination carried out.

En. M.R. 139/87

Physician to report refusal or neglect of treatment

41(1) A physician who, having attended on a person and having diagnosed the person as having gonorrhea, syphilis, chancroid or chlamydia in an infectious form, shall make a report to the director where

(a) the person fails to consult the physician within a period of seven days from the previous consultation; and

(b) the physician has reason to believe that the person may have the disease in an infectious form.

En. M.R. 139/

41(2) The physician shall provide such information as the director shall request.

En. M.R. 139/87

Physician to secure specimens

42 Where a physician has diagnosed a person as having a sexually transmitted disease or has formed the opinion that a person may have a sexually transmitted disease, the physician shall,

(a) wherever possible, secure specimens for examination and forward them for examination to a laboratory approved by the director; or

(b) if requested by the director, secure specimens for examination and forward them to a laboratory specified by the director.

En. M.R. 139/87

Labelling of specimens

43 A physician shall label each specimen submitted to a laboratory

(a) for examination for the detection of syphilis, gonorrhea, chancroid or chlamydia with the name, sex, date of birth, address and the Manitoba Health Services Commission registration number of the person from whom the specimen was secured, the specimen site and the date taken; and

(b) for examination for the detection of the Human Immunodeficiency virus (HIV);

(i) in a manner which shall preserve confidentiality,

(ii) with the sex and the day and year of birth of the person from whom it was secured, and

(iii) with the date the specimen was taken.

En. M.R. 139/87

Report by laboratory operator

44 The person in charge of a laboratory shall, within forty-eight hours of the time that each result is known, report to the director

(a) all positive results of tests for *Neisseria gonorrhoeae*;

(b) all positive results of tests for *Treponema pallidum*;

(c) all positive results of tests for *Haemophilus ducreyi*;

(d) all positive results of tests for *Chlamydia trachomatis*; and

(e) all positive results of

(i) a serologic test for the presence of antibody to the Human Immodeficiency virus (HIV), or

(ii) the laboratory identification of the Human immunodeficiency virus (HIV).

En. M.R. 139/87

Medical order by director

45 Where the director upon reasonable and probable grounds believes

(a) that a person has or may have a sexually transmitted disease; or

(b) that a person has been in contact with another person who has a sexually transmitted disease under circumstances from which it reasonably can be expected that the first named person may have been exposed to a sexually transmitted disease,

the director may make an order in Form II of the Schedule to this Division requiring the person to take any one or more of the action set out in the order.

En. M.R. 139/87

Supply of drugs etc. by unqualified person prohibited

46 No person other than

(a) a physician;

(b) a registered nurse acting under the supervision of a physician; or

(c) a licensed pharmacist who dispenses a drug, medicine or appliance to a person upon a written prescription signed by a physician;

shall attend upon, prescribe, supply, or offer to supply any drug, medicine or appliance, to or for another person for the purpose of diagnosing, alleviating or curing a sexually transmitted disease.

En. M.R. 139/87

Documents prohibited

47 No person shall issue, give, use or display any document or other form of writing that represents that any person is free from a sexually transmitted disease.

En. M.R. 139/87

Confidentiality

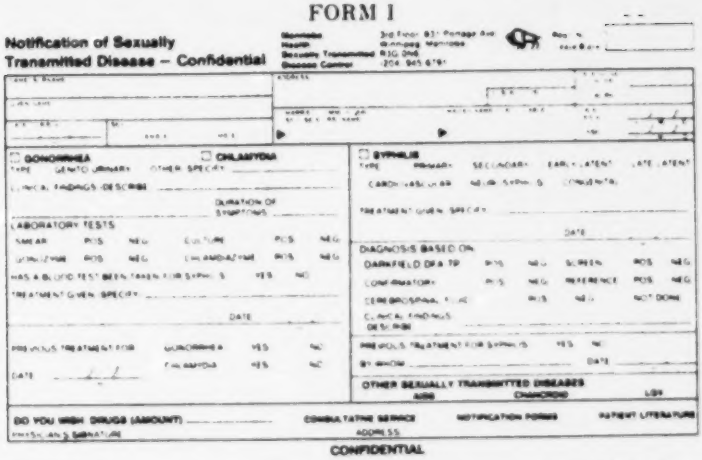
48 Except where otherwise required by law, no person engaged in the administration of this Division shall disclose any matter which may come to that person's knowledge in the course of that person's duties, except

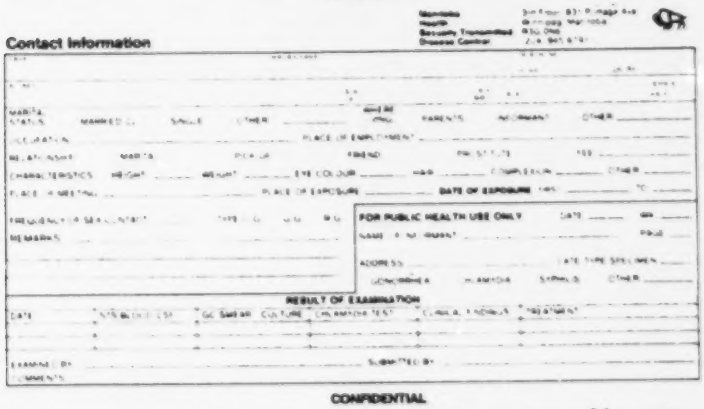
(a) to other persons engaged in the performance of duties under this division to the extent necessary to fulfill such duties; or

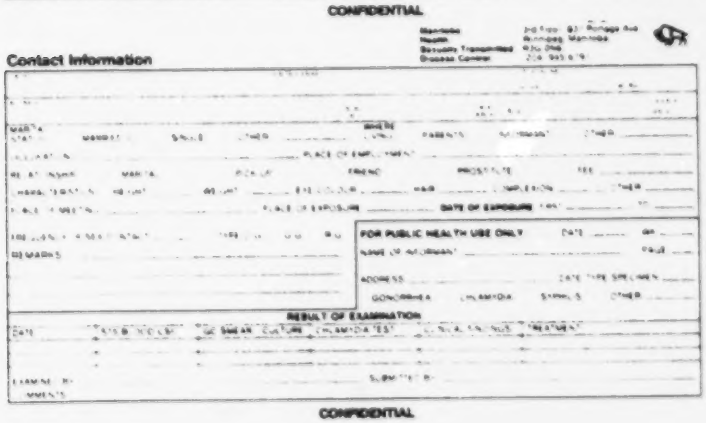
(b) upon the written instruction of the minister.

En. M.R. 139/87

FORM I







En. M.R. 139/87.

FORM II
(s. 45)
MANITOBA HEALTH
THE PUBLIC HEALTH ACT AND REGULATIONS

Order for a Medical Examination of a Person by a Physician

TO: _____ Date of Birth: ____/____/____
(Year-Month-Day)

OF: _____ _____
(Occupation)

WHEREAS, on the basis of information received by me,
I believe that

(a) you have or may have a sexually transmitted disease; or

(b) you have been or may have been in contact with another person who has a sexually transmitted disease, under circumstances from which it reasonably can be expected that the infected person may have transmitted the disease to you;

and should be examined by a physician to ascertain if you have a sexually transmitted disease.

NOW THEREFORE, pursuant to The Public Health Act and regulations, I DO ORDER;

(1) THAT you, _____shall consult and be examined by _____a physician.

(2) THAT you present yourself to the said physician at

_____
(address)

on or before the _____day of _____, 19_____, between _____and _____.

(3) THAT if you are found on examination to be infected with a sexually transmitted disease, you do, within _____days after the completion of the examination mentioned in paragraph (1) of this order, present yourself to the physician named above, or to some other physician, and take treatment for the sexually transmitted disease and continue to receive treatment until you no longer have the sexually transmitted disease in its infectious form, as determined by the Director of Communicable Disease Control.

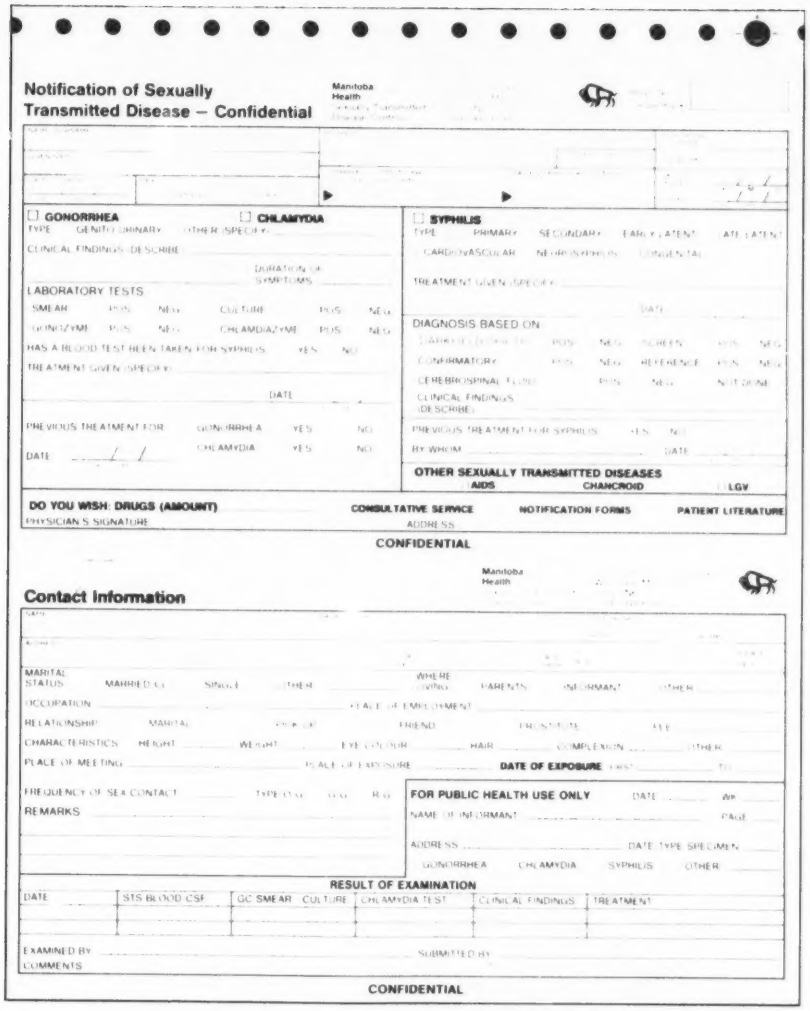
DATED at _____this _____day of _____, 19____

_____ _____
Medical Officer of Health Director of Communicable Disease Control

_____ _____
Address Address

En. M.R. 139/87.

APPENDIX B



Notification of Sexually Transmitted Disease – Confidential

Manitoba Health

☐ GONORRHEA ☐ CHLAMYDIA

TYPE GENITO-URINARY OTHER (SPECIFY)

CLINICAL FINDINGS (DESCRIBE)

DURATION OF SYMPTOMS

LABORATORY TESTS

SMEAR POS NEG CULTURE POS NEG

GONIOZYME POS NEG CHLAMIDIAZYME POS NEG

HAS A BLOOD TEST BEEN TAKEN FOR SYPHILIS YES NO

TREATMENT GIVEN (SPECIFY)

DATE

PREVIOUS TREATMENT FOR GONORRHEA YES NO

CHLAMYDIA YES NO

DATE / /

☐ SYPHILIS

TYPE PRIMARY SECONDARY EARLY LATENT LATE LATENT

CARDIOVASCULAR NEUROSYPHILIS CONGENITAL

TREATMENT GIVEN (SPECIFY)

DATE

DIAGNOSIS BASED ON

DARKFIELD EXAM FOR T.P. POS NEG SCREEN POS NEG

CONFIRMATORY POS NEG REFERENCE POS NEG

CEREBROSPINAL FLUID POS NEG NOT DONE

CLINICAL FINDINGS (DESCRIBE)

PREVIOUS TREATMENT FOR SYPHILIS YES NO

BY WHOM DATE

OTHER SEXUALLY TRANSMITTED DISEASES

AIDS CHANCROID LGV

DO YOU WISH: DRUGS (AMOUNT) CONSULTATIVE SERVICE NOTIFICATION FORMS PATIENT LITERATURE

PHYSICIAN'S SIGNATURE ADDRESS

CONFIDENTIAL

Manitoba Health

Contact Information

DATE

NAME

MARITAL STATUS MARRIED ☐ SINGLE OTHER WHERE LIVING PARENTS INFORMANT OTHER

OCCUPATION PLACE OF EMPLOYMENT

RELATIONSHIP MARITAL KIND OF FRIEND FRIENDSHIP AGE

CHARACTERISTICS HEIGHT WEIGHT EYE COLOUR HAIR COMPLEXION OTHER

PLACE OF MEETING PLACE OF EXPOSURE DATE OF EXPOSURE FIRST TO

FREQUENCY OF SEX CONTACT TYPE OF SEX ☐ ☐ ☐ ☐

REMARKS

FOR PUBLIC HEALTH USE ONLY DATE AM

NAME OF INFORMANT PAGE

ADDRESS DATE TYPE SPECIMEN

GONORRHEA CHLAMYDIA SYPHILIS OTHER

RESULT OF EXAMINATION

DATE	STS BLOOD CSF	GC SMEAR CULTURE	CHLAMYDIA TEST	CLINICAL FINDINGS	TREATMENT

EXAMINED BY SUBMITTED BY

COMMENTS

CONFIDENTIAL

APPENDIX C

DARKFIELD EXAMINATIONS FOR SYPHILIS

Because access to darkfield microscopy facilities for the identification of cases of infectious syphilis is severely limited for both rural and urban physicians, the Cadham Public Health Laboratory offers a "mail-in" slide test. The test is known as the Direct Fluorescent Antibody Treponema Pallidum Test (DFA-TP). A blood specimen for syphilis serology should **always** be taken and submitted simultaneously. In the case of a suspect chancre please note this information on the requisition and an FTA-ABS Test will be performed on the blood sample.

Instructions for Submitting Material for DFA-TP Test

SUSPECT CHANCRE

1. Wear surgical gloves when obtaining specimen.
2. Use a saline-moistened compress to clean lesion.
3. Using a clean saline-moistened compress, gently rub the lesion to obtain a serous exudate but **avoid bleeding**.
4. Collect the exudate either by touching it to the centre of a clean glass bacteriology slide or by means of a fine capillary tube. If a capillary tube is used, transfer contents to several glass slides. A grease pencil circle on the reverse side of the slide would be helpful in indicating location of material. Even more preferable is the use of slides with frosted ends and 2 etched rings on surface.
5. Allow serum on slides to air dry for 30 minutes.
6. Unless slides can arrive at the laboratory the day of collection they should preferably be fixed by immersion in acetone for 10 minutes.
7. Mail slides to Cadham Public Health Laboratory in cardboard slide containers and request DFA-TP test.

APPENDIX D

LABORATORY DIAGNOSIS OF GONORRHEA

Testing: All patients tested for gonorrhea should have a VDRL.

Swabs: Urethra — thin wire shafted cotton tipped applicator Calgiswab or gonozyme swab.

Cervix, Rectum, Throat — cotton tipped wooden or calcium alginate applicator or gonozyme swab for cervix only.

COLLECTION OF SPECIMENS

1. Urethral samples in men are collected by introducing the sampling swab approximately one to two cm up into the urethra, where it is rotated gently before withdrawal. The swab can be moistened in saline before use in order to facilitate its introduction. To increase the chance of recovering *N. gonorrhoea* the patient should not have voided for several hours prior to sampling.
2. To collect samples for gonococcal testing from the cervix, a speculum is introduced into the vagina. The speculum may be moistened with warm water prior to insertion. (Gynecologic creams or lubricants should not be used on the speculum as they may contain an antibacterial ingredient which may destroy gonococci.) The cervix should be cleansed of external exudate. A sampling should be introduced into the endocervical canal and rotated before withdrawal, ten to 30 seconds later. If the hymen is intact, samples are collected from the vaginal orifice.
3. Rectal samples are collected by introducing a sterile swab three to four cm into the rectum. If there is any fecal contamination of the swab, it should be discarded and a repeat specimen obtained.
4. Pharyngeal specimens are obtained by swabbing the posterior pharynx, including the tonsillar areas and faucial pillars.
5. Samples of conjunctival exudate should be collected with a cotton-tipped swab.

I. GRAM STAIN

This method of testing involves testing for dead organisms.

It provides results within 20 minutes if done on site or the same day it is received at the laboratory.

In the female genitourinary tract it is less specific.

Testing Procedure:

Collect secretions from the male urethra by inserting a calcium alginate swab or wire loop.

Gently roll the swab on to a clean glass slide taking care not to rub the swab against the slide destroying the morphology. Allow the slide to air dry and send it to the laboratory appropriately labelled and requisitioned.

II. CULTURE

A. AMIES TRANSPORT MEDIUM WITH CHARCOAL

This transport medium with the addition of charcoal allows for the transportation of the organism to a laboratory. At the laboratory the specimen will be used to inoculate Thayer-Martin culture medium so that the organism can be identified.

Amies medium is available from Cadham Provincial Laboratory or from the laboratory receiving the culture. It is stored at 4°C and has a shelf life of two months. Amies medium should be brought to room temperature prior to use. After inoculation it is maintained at room temperature until it reaches the laboratory for plating onto culture media.

TESTING PROCEDURE:

Insert the sampling swab into the site that requires testing, (See Collection of Specimen section).

Place the swab into the Amies charcoal medium which has been warmed to room temperature. Transport to the laboratory at the same temperature.

B. THAYER-MARTIN (T.M.) CULTURE MEDIUM

This medium is used for the growth of *N. gonorrhoea*. The T.M. culture plate should be stored in the refrigerator at 4°C. Prior to inoculation the medium must be at room temperature and after inoculation should be incubated in a CO_2 incubator for 24 hours at 37°C before being transported to the laboratory at room temperature.

A self-extinguishing candle jar will serve the same purpose as a CO_2 incubator by creating a CO_2 environment. Each time the jar is opened to receive an inoculated culture plate the candle is lit, the lid replaced tightly and allowed to burn out, thus creating CO_2. The candle jar and inoculated plates are kept at room temperature while awaiting transport to the laboratory.

TESTING PROCEDURE:

Collect the specimen as described in the "Collection of Specimen section testing procedure Amies transport media". Having done so, roll the applicator lightly across the culture medium in a Z fashion. Ensure that, all sides of the cotton swab are rolled over the medium. Transport to laboratory at room temperature.

Each site tested (cervix, rectum, pharynx and/or urethra) must be placed on **individual plates** and appropriately labelled and requisitioned.

III. GONOZYME

This test is an enzyme immonunoassay test which detects the *N. gonorrhoeae* antigen.

It is recommended only for genitourinary specimens. Specimens from the pharynx and rectum should be sent in Amies transport media or on Thayer-Martin culture media.

TESTING PROCEDURE FOR GONOZYME:

The STD PEN for males and STD EZE for females are for collection of genitourinary specimens that are to be tested by gonozyme.

Place the provided swab in the endocervix (female) or urethra (male) and leave in site for ten seconds.

Make a smear on a regular microscope glass slide with this swab. Then place the swab in the transport tube and label the tube (gonorrhoeae). Allow the smear to dry, wrap the slide in a cardboard slide holder, attach the slide and transport tube together with an elastic band. Submit the wrapped slide and the STD PEN or EZE to the Cadham Provincial Laboratory.

NOTE: The gonozyme test is useful for eye, cervix or urethral specimens only. The specimens may be kept at room temperature until arrival at the laboratory. Freezing, does not have a deleterious effect on the specimen. Gonozyme must be submitted along with a smear as a check of the specimen quality, and use in the confirmatory test.

APPENDIX E

LABORATORY DIAGNOSIS OF CHLAMYDIA

TESTING

All patients tested for chlamydia should have a VDRL.

TESTS

There are two tests available for detection of *C. trachomatis*.

1. Chlamydiazyme (STD PEN - STD EZE) is an antigen detection test. The test is performed with the same swabs and containers as for gonozyme (see page 90). It is useful only for eye, cervix or urethral specimens. The specimens differ from gonozyme testing in that the gonozyme test requires the pus from the above sites while chlamydiazyme requires the cells lining the conjunctival sac, cervix or urethra. Chlamydiazyme should not be used for throat, anal or vaginal specimens.

2. Microtrak is a fluorescent antibody test. The specimens required are cells from the affected area which are smeared on the centre of a glass microscope slide and air dried. The side smeared should be indicated by a mark (sticky label, china pencil, etc.) and labelled. Microtrak, when clinically necessary, should be used from anal and vaginal sites. Suspected cases of sexual abuse of pre-pubertal children should have microtrak testing when appropriate.

COLLECTION OF SPECIMENS

The female should be in the lithotomy position, and the speculum used to visualize the cervix should be lubricated with warm water.

1. After a specimen for *N. gonorrhoeae* has been taken, place a second appropriate swab in the cervix or the urethra, rotate the swab several complete rotations. This will remove the needed superficial layers of epithelical cells in which chlamydial organisms are located.

If testing is for chlamydia only, make sure the cervix is cleaned of external exudate with a regular swab before taking the specimen.

2. Rectal and pharyngeal specimens are taken as for gonorrhea using microtrak test kit.

3. Place the swab in the provided transport tube and label this tube "chlamydia". Submit the specimen in the tube to Cadham Provincial Laboratory.

APPENDIX F

MANAGEMENT OF ACUTE REACTIONS TO PENICILLIN OR OTHER DRUGS — ANAPHYLAXIS PROTOCOL

MANAGEMENT OF ANAPHYLAXIS

Anaphylaxis, a potentially life-threatening acute systemic allergic reaction to a foreign substance, is extremely uncommon after antimicrobial administration. Nonetheless, clinic staff should have basic knowledge on how to recognize and initiate "first-aid" treatment of this reaction.

Anaphylaxis must be distinguished from simple fainting (vasovagal syncope) which can occur before, during or shortly after injection. Persons experiencing syncope may become pale and feel faint, or they may suddenly collapse unconscious but with a steady pulse and normal respirations. Persons feeling faint should lie flat or sit in the head-down position for several minutes. Persons who faint completely should be placed flat with the feet (**not** the head) somewhat elevated. After they regain consciousness, they should be allowed to rest in a quiet area for ten minutes.

Anaphylaxis usually begins at least several minutes after injection of an offending substance. Initial symptoms typically include several of the following: sneezing, coughing, itching, "pins and needles" sensation of the skin, flushing, facial edema, urticaria ("hives"), and anxiety. In severe cases, these symptoms may be followed by progressive dyspnea (with or without audible wheezing or stridor due to lower and/or upper airway narrowing) and/or hypotension which may progress to shock and collapse, with a weak and fast or irregular pulse.

The following is a guideline for **immediate** "first aid" clinics where more sophisticated medical attention and equipment (oxygen, sphygmomanometer, and intravenous medication) are not immediately available. Nurses can legally initiate these emergency treatment measures.

1. Call emergency medical/paramedic staff.
2. Administer oxygen if immediately available.
3. Apply tourniquet lightly (not so tightly as to stop arterial pulse) above injection site, unless this is impossible (as in deltoid or gluteal area injection).
4. Inject **intramuscularly** into the deltoid (not in the same arm as the injection) aqueous 1:1000 epinephrine (adrenalin) according to the following approximate dosage:

< 12 months	0.05 ml
1-4 years	0.15 ml
5-11 years	0.3 ml
≥ 12 years	0.5 ml

or give 0.01 ml/kg IM for children under 12.

If no improvement occurs within three to four minutes, repeat this intramuscular dose. Monitor respirations, pulse, and (if a sphygmomanometer is available, blood pressure). The same epinephrine dose can be repeated every 10-15 minutes, if needed.

5. As an adjunct to epinephrine (but **not** a replacement), Benadryl (diphenhydramine hydrochloride), 50 mg/ml, can be given once intramuscularly (at a different site than the epinephrine) in the following approximate dosage:

Under age 2 years	0.25 ml
Ages 2-4 years	0.5 ml
Ages 5-11 years	1.0 ml
≥ Age 12 years and adults	2.0 ml

or give 2.5 mg/kg (0.05 ml/kg) IM for children under 12.

PROCAINE REACTIONS

A procaine reaction may occur several minutes after aqueous procaine penicillin has been injected. The clinical features include disorientation, hallucinations, tinnitus and seizures. The patient usually makes a complete recovery within one hour. When the reaction occurs the subject should be placed in a supine position and reassured. The presence of any associated allergic signs would suggest the possibility of a penicillin reaction also being present.

JARISCH — HERXHEIMER REACTION

This is an acute febrile reaction following syphilis therapy in about 50-75% of patients who are being treated for primary and secondary disease. The reaction usually begins four hours after the injection. There is a prodrome during which the patient may suffer non-specific distress, the temperature then rises and there may be an appearance of generalized rash with swelling and tenderness of involved lymph nodes. This reaction reaches a peak about eight hours after the injection and usually has disappeared within 24 hours.

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1. Holmes K.K., Mardh P-A, Sparling P.F., Wiesner P.J., Sexually Transmitted Diseases, McGraw-Hill Book Company 1984.
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3. U.S. Department of Health and Human Services, Morbidity and Mortality Weekly Report, 1985 Chlamydia Trachomatis Infections, Policy Guidelines for Prevention and Control, August 23, 1985/Vol. 34/No. 3S.
4. U.S. Department of Health and Human Services, Morbidity and Mortality Weekly Report, 1985, STD Treatment Guidelines, October 18, 1985/ Vol. 34/No. 4S.

GLOSSARY

BID	Two times a day
g	Gram
IM	Intramuscular
IUD	Intrauterine device
IV	Intravenous
Kg	Kilogram
mg	Milligrams
PID	Pelvic inflammatory disease
PPNG	Penicillinase-producing *Neisseria gonorrhoea*
QID	Four times a day
STD	Sexually Transmitted Disease